MOTHER TONGUE

JOURNAL OF THE ASSOCIATION FOR THE STUDY OF LANGUAGE IN PREHISTORY

ISSUE IX, 2004

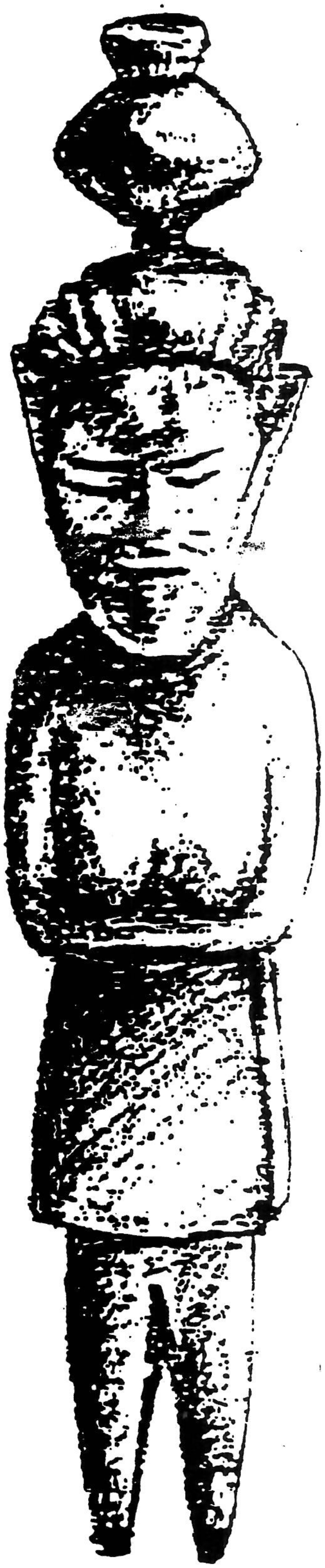


TABLE OF CONTENTS

1 Editorial Foreword

LANGUAGE IN AUSTRALIA

3 Background Information on Australian Languages.

7 Pama-Nyungan under Unjustified Attack
By *Geoff O'Grady (Victoria, British Columbia)*

110 Comment on O'Grady's Paper
by *Paul Whitehouse (London)*

130 Rebuttal by *Geoff O'Grady*

KINSHIP TERMINOLOGY RE-ENTERS PREHISTORY

133 The Global Distribution of (P)APA and (T)ATA and Their Original Meaning
By *Alain Matthey de l'Etang* and *Pierre Bancel*

171 Kin Tongue: A Study of Kin Nursery Terms in Relation to Language Acquisition, With a Historical and Evolutionary Perpective
By *Pierre Bancel* and *Alain Matthey de l'Etang*

DIGGING DEEPER INTO AFRICAN PREHISTORY

192 Some Thoughts about Shabo, Ongota and the Kadu Family of Languages
By *Philippe Bürgisser (Lausanne, Switzerland)*

BOOK REVIEWS

217 *Origini delle Lingue d'Europa* (1996, 2001) and
Etrusco: Una Forma Arcaica di Ungherese (2003)
by Mario Alinei. Bologna: Il Mulino, 1996, 2000, 2003)
Reviewed by *Jonathon Morris* (São Paulo, Brazil)

2004 by the Association for the Study of Language In Prehistory

ISSN: 1087-0326 *Mother Tongue: The Journal*

Mother Tongue Issue IX, 2004
Journal of the Association for the Study of Language In Prehistory

OFFICERS OF ASLIP

President
Michael Witzel
Department of Sanskrit
and Indian Studies
Harvard University
1 Bow Street,
Cambridge. MA 02138
witzel@fas.harvard.edu
617-495-3295
On leave 2004-2005

Vice President..
John D. Bengtson
5108 Credit River Drive
Savage, MN 55378-4620
jdbengt@softhome.net
Tel. 952-440-5538

Vice President &
Acting Treasurer
Harold C. Fleming
16 Butman Avenue
Gloucester, MA 01930-1006
nfleming1@earthlink.net
Tel. 978-282-0603

Secretary
Murray Denofsky
252 Medford Street
Apt. 809
Somerville, MA 02143
denofs6@aol.com
Tel. 617-625-8960

Mother Tongue Editor:
Harold C. Fleming
nfleming1@earthlink.net

Board of Directors

Allan R. Bomhard (Charleston, SC)
Gyula Décsy (University of Indiana)
John Robert Gardner (Marblehead, MA)
Michael Puett (Harvard University)
Ronald Christensen (Lincoln, MA)
Frederick Gamst (Cheyenne, WY)
Philip Lieberman (Brown Uniersity)
Jan Vansina (Madison. WI)

Council of fellows

Raimo Anttila (University of California, L.A.)
Luigi Luca Cavalli-Sforza (Stanford University)
Dell Hymes (University of Virginia)
Sydney M. Lamb (Rice University)
Daniel F. McCall (Boston University)
Merritt Ruhlen (Stanford University)
Sergei A. Starostin (Russian State University)
Ofer Bar-Yosef (Peabody Museum)
Aharon Dolgopolsky (University of Haifa)
Vyacheslav V. Ivanov (Russ. Acad. of Sci)
Winfred P. Lehmann (Univ. of Texas)
Colin Renfrew (Cambridge University)
Vitaly Shevoroshkin (Univ of Michigan)

ASSOCIATION FOR THE STUDY OF LANGUAGE IN PREHISTORY (ASLIP)
Our Website: **http://www.people.fas.harvard.edu/~witzel/aslip.html**

Editorial Foreword

We find ourselves producing Issue IX which was due to come out – one year ago. Alas, there is no escaping the blame for this delay. It was my fault, simplement dit. However, we did have some help in delaying this issue. Thanks to the following:

a) our computer died entirely with some files not yet backed-up.
b) the American political season was extraordinarily long and emotional.
c) three archeologists reneged on their participation in MT*Treatment
d) one linguist reneged on his participation in the Australian section, forcing us to re-type the whole thing on my (new) font-deficient computer
e) Mother Earth blessed us with a long cold winter, while Father Time conspired with her to slow down our brain and limbs.Think of molasses oozing up a hill.
f) *Ongota: A Decisive Language for African Prehistory*. (Harrassowitz) In press.

Nevertheless, because of the quality of the scholarly work which was offered for publication, we have a pretty good issue! There are four distinct sections.

First, Geoff O'Grady fought down a debilitating illness to give a piece of his Meisterwerk to demonstrate the usefulness of the standard Comparative Method in reconstructing Pama-Nyungan and to continue the tradition of Wurm, Capell, Hale and himself in producing accurate and useful taxonomy and sound laws, hence prehistory, Australia is still the best candidate for a 'special window on the past' because of the dates of its first settlement and because of the long anthropological tradition that the Aborigines had something important to tell us about Early Man. As an Africanist, used to viewing the Bushmen in the same light, it was enlightening to sit by wholly different camp fires and learn new things.

Geoff's article is followed by Paul Whitehouse's good-natured critique. Paul works primarily to block Geoff's conclusion about the speed of lexical change and the hope (or hopelessness) of calculating linguistic dates in this very important phylum. Australia with its dated novelty or first entry into/onto the continent has serious implications for the whole world and all our efforts at writing prehistory. One example: by Geoff's calculations it is a long way from proto-Pama-Nyungan of around 4000 BP and the earliest Homo sapiens in Australia of around 40-60 kya. But using his percentages it would appear that Pama-Nyungan could be around 9 or 10% which by new glottochronological methods would be circa 9500 BP

Equally important would be the break-through shown us by the dual membership proposals for Tasmanian. Too paraphrase an old Greenberg saying – if A is related to B, and A is related to C, then probably B is related to C – unless borrowing can undo the equation. Tasmanian links Australian and (at least) the 'Pacific' branch of Indo-Pacific (Usher 2002) which is the same as Ruhlen's sub-phylum XIII 'East Papuan'. Actually 'Pacific' is a better label since it includes much of Melanesia almost as far as Fiji and includes an archeological date of 28,000 in the Solomons. (Even older dates were reported in early issues of our Newsletter –ED.) Usher argues that the Australian similarities to Tasmanian are borrowings from Kulinic (near Melbourne) just across Bass Straits from Tasmania. Theoretically at least, the same could be said of the 'Pacific' similarities in Tasmanian, albeit not as convincingly.

Secondly, several times in the past some of us have protested the general linguistic and anthropological habit of explaining 'baby talk' or 'nursery words' in terms of an ostensibly obvious tendency of babies – all around the world – to make easy initial utterances like [dada], [tata], [baba], [mama] and so forth and to direct them towards their principal care givers, especially 'mom' and 'pop' and for the language as a whole to be beholden to infants for their primary kin terms.. In more serious philosophy of science terms this general scholarly habit led to the very unusual causal statements that, unlike most of vocabulary which was a historical product (inherited and passed on), primary kin terms were invented, were a by-product of child psychology, were re-invented generation after generation, and were passed on to adults who used them in their language. And of course, these terms were of no value in historical research; they were eminently synchronic Along with iconic terms (Anttila's usage) or so-called onomatopoeia or sound symbolism, nursery words were useless for historical linguistics.

It is thus wonderful to find Alain Matthey de l'Etang and Pierre Bancel continuing to do their work, started in MT-VII, of blowing away the nonsense of long neglected habits, of mistaken psychology, and returning to the scholarly world these very useful early words. The odds that there was a proto-human or proto-Homo sapiens have increased a great deal. We leave their articles to speak for themselves.

Third, in another big boost from Francophone scholarship – previously sorely missing from our common endeavour – Philippe Bürgisser attempts to crack the African nut that Greenberg never had to confront. If the reader will recall the Shabo and Ongota data previously reported in Issue VII and compare that with the dramatic excision of the Kadu group from Kordofanian by Theo Schadeberg several years ago, she will realize that at least potentially Africa's four phyla may be confronted with three more. Just as Nature abhors a vacuum, long rangers abhor unclassified languages or 'isolates' or those who have no kin folk.

Giving up on Ongota probably because others are working on it (e.g., Sava, Tosco, Fleming), Philippe draws a tentative conclusion or working hypothesis about Shabo mostly because the pronouns seem difficult or treachorous but he inclines towards Nilo-Saharan, like Flemng but unlike Ehret or Bender.. His main effort is saved for Kadu, represented by the languages of the 'Tumtum' group of Korofanian in Greenberg's 1963 classification. There are only three opinions in the literature that I know of – Schadeberg's, Bender's and Ehret's – and Philippe does not fully agree with any one but reaches his own conclusions. The reader is urged to read his article so as to find out.

Fourth, a very promising amateur reviews a very different kind of linguistic prehistory done by an Italian scholar, Mario Alinei, whom I regret not knowing. Jonathon Morris is an Englishman and what we used to call a 'polyglot'. He lives and works as an interpreter in Brazil. His interests go deep into prehistory, including taxonomy, linguistic dating, and genetics. Like so many of our gifted amateurs, he already knows so much that he ought to be granted a graduate degree, say PhD in Paleolinguistics

Professor Alinei has a new approach to dating. It is outside of the usual channels for linguistic dating, i.e., not glottochronology, nor reconstruction correlations, nor the mathematical hocus pocus.some have indulged themselves in recently. We leave you to discover his thesis.

Background Information on Australian Languages

From data supplied by Geoff O'Grady, supplemented by Merritt Ruhlen's classification (Ruhlen 1991) which in turn was based in part on Walsh & Wurm, 1982, and Paul Black's personal comments on the subject in 1982. A brief listing of the well-known laminal sounds, peculiar to Australia (as far as I know), is given; this was borrowed from Dixon, 1980. All this information is preparatory to O'Grady's article on Pama-Nyungan.

In 1991, Ruhlen drew on published sources for the most part and arrived at the following sub-classification of the Australian phylum of languages. Each of the first 15 names designates a single language which cannot be subsumed in any other class or sub-class other than itself. Each is comparable to Basque or Burushaski or Sumerian in one sense only – it has not yet been subsumed under a larger grouping other than the overall but remote super-phylum into which it has been (more or less confidently) included.

Enindhilyagwa
Gagudju
Mingin
Tiwi
Umbugarla
Ndjébbana
Kungarakany
Nakkara
Waray
Gunbudj
Yanyuwa
Mangarayi
Nunggubuyu
Limilngan
Murrinh-Patha

Each of these languages is found only in northern Australia, mostly in its western quadrant. The same is true for the more demarked sub-groups of Australian which usually have more than one member. (Shown in parentheses are the number of languages.) The Roman numerals are from Ruhlen,

I. Yiwaidjan (4)
II. Mangerrian (1)
III. Gunwinyguan (9)
IV. Burarran (2)
V. Maran (2)
VI. West Barkly (3)
VII. Garawan (2)
VIII. Laragiyan (2)
IX. Daly (9)
X. Dhamindjungan (3)
XI. Djeragan (3)
XII. Bunaban (2)
XIII. Nyulnyulan (2)
XIV. Wororan (3)

Number XV is Pama-Nyungan with 109 languages, by Ruhlen's count and more by others. While groups I-XIV are found only in northwestern Australia, Pama-Nyungan occupies the rest of the continent (the same size as the USA minus Alaska). None of this includes Tasmania, in many ways a part of Australia, but not necessarily closely related to Australia in language. We will have little to say about Tasmanian external genetic relations because there are two conflicting hypotheses about Tasmanian's primary kindred languages, whether Australian as many Australian linguists believe or Indo-Pacific as Greenberg and Usher have proposed. Most recently, unpublished and non-official research reports from Santa Fé Institute scholars suggest that the correct answer is BOTH, with the key questions then becoming – which one is closer and what route did the early Tasmanians follow to get to their eventual home?

According to Ruhlen's sub-classification, Pama-Nyungan has 22 distinct sub-taxa which contain about 100 of the languages, while nine remain unassigned to a group.As Whitehouse points out in his comments, Geoff O'Grady used *geography*, rather than *genetic distance*, to show remoteness of individual languages from each other. In its peculiar distribution wherein there is great genetic diversity in one smaller area contrasting with broad similarity in a second much larger area, Australian is unusual but not unique. Both Niger-Congo and Austronesian share this pattern in general. Austronesian has its greatest genetic diversity concentrated on the island of Formosa (Taiwan) with everyone else literally spread across the Pacific Ocean with a side kick in Madagascar. Niger-Congo concentrates its major sub-taxa from Senegal to Kordofan but then has one minor taxon (Bantu) occupying most of the southern third of Africa, roughly equal to Pama-Nyungan in size of area. Only Semitic in pre-Columbian times occupied a larger area, mostly due to Arabic. 14th century Mongolian had an even bigger area – briefly. In modern times five European colonial languages presided over larger areas.

Phonologically speaking, Australia has two features which require discussion. First and foremost, the sounds of Australian languages are not extraordinarily difficult, except for the so-called laminals which were sometimes hard for early field workers to get straight. There is a great deal of homogeneity in sounds, at least from an African standpoint. Second, the laminals create trouble for scholars because there are at least two very different ways to record them on paper or commuter. On the one hand in the 20th century we had the IPA system of writing these sounds and all others in the world. The symbols chosen by IPA, while not totally arbitrary, were unfamiliar to many and difficult to find on a typewriter or many computers' fonts. On the other hand Australia's linguists, native sons for the most part, evolved a comfortable and easy system for recording Australian languages. The IPA system is used by Paul Whitehouse in his commentary, while the Australian system is used by Geoff O'Grady in his article. Realizing that, the reader should not have great difficulty moving between the systems.

But she should know what we are talking about when we say 'laminals'. Apparently that term was coined by Dixon many years ago. The image given is that of a sound made by biting down lightly on your tongue. Geoff O'Grady prefers to think of them as two types of sounds. One is a group made with the tongue tip near the teeth, i.e., dentals or inter-dentals, hence in a sense laminal. The other is a group of retroflex sounds, more reminiscent of Dravidian than anything else. Then we have the several laterals and rhotics (r-like sounds). Combining them, we get the following scheme.[1]

	Apico-alveolar	postalveolar	Lamino-interdental	palatal	Peripheral dorsal	labial
Stop	d	rd	dh	j	g	b
Nasal	n	rn	nh	ny	ng or ŋ	m
Lateral	l	rl	lh	ly		
Rhotics	r	rr or ɹ̣				
Semi-vowel			y		w	

---

[1] This was made up from the discussion of phonology given in Dixon (1980:Chapter 6); he is not to blame, of course. Pages 131-138 he uses the IPA system for part of his discussion.

Vowels basically are [i], [u], and [a] with sometimes [ɛ] and [ɔ]. Often long versus short are phonemic. Tonal distinctions are not characteristic of Australia generally.

ACRONYMS OF LANGUAGE NAMES

To assist the reader in identifying the languages discussed in O'Grady's text and, on the maps which will follow these names, we give here a list of O'Grady's acronyms.

AND	Adnyamathanha	ALY-N	Northern Alyawarra
ANT	Antikirrnya	ARB	Arabana
ARR-S	Southern Arrernte	BAA	Baagandji
BAT	Batyamal	BAY	Bayungu
BLG	Balygu / Palyku	DIY	Diyari
GAW	Gawurna	GID	Gidhabal
GIP	'Gippsland'	GNG	Gunggari
GOO	Gooniyandi	GOR	Goreng-Goreng
GRD	Gardujarra	GRJ	Garajarri
GRY	Gariyarra	GUM	Gumbaynggir
GUP	Gupapuyngu	GYA	Gugu-Yalanji
IOR	Iora	JIW	Jiwarli
JNG	Jingili	JPW	Tjapwurrung
KLY	Kala Lagaw Ya	KRW	Garwa
LIN	Linngithigh	LRD	Lardil
MAR	Mara	MAW	Mawng / Maung
MDB	Mudburra	MGU	Margany and Gunya
MIR	Meryam Mir	MKU	Mayi-Kulan
MLG	Malgana	MM	'Mount Margaret'
MRA	Maranunggu	MRN	Mirniny
NAN	Nhanda	NAR	Nharangga
NGB	Nunggubuyu	NGI	Ngiyambaa
NGJ	Ngajunma	NGL	Ngarla
NGU	Ngarrugu	NGW	Ngawun
NMA	Ngarluma	NN	Nyul-Nyul
NUG	Nukunu	NYA	Nyangumarta
NYA-W	Nyangumarta of Wallal. 1949-1955		
NYU	Nyungar	NYU-N(=WJK)	Northern Nyungar
pA-TAS	proto-Australian-Tasmanian	pCK	proto-Central Karnic
pIE	proto-Indo-European	PIN	Pintupi
PIT	Pitta-Pitta	pK	proto-Kanyara
pKR	proto-Karnic	pKRD	proto-Kardu
pM	proto-Mantharda	PMK	Peremka
PNK	Pankaria	pNY	proto-Nyungic
pPN	proto-Pama-Nyungan	pPN-	sub-proto-Pama-Nyuingan
PTJ-E	Ernabella Pitjantjatjarra	pWK	proto-Western Karnic
RIT	Ritharngu	TAS-SE	Southeastern Tasmanian
TAS-W	Western Tasmanian	THL	Thalandji
T I W	Tiwi	UMP	Umpila

URA	Uradhi	WEM	Wembawemba
WGK	Wangkangurru	WIR	Wirangu
WJI	Wajarri	WJK (=NYU-N)	Wadjuk
WKY	Wakaya	WLM	Walmajarri
WLP	Warlpiri	WMK	Wik-Mungkan
WOI	Wolwurrung	WRA	'Warburton Ranges'
WRG	Wargamay	WRI	Wirri
WRJ	Wiradjuri	WRN	Warnman
WUN-S	Southern Wunambal	YAM	Yambina
YAN	Yanyuw a	YAR	Yaraldi
YDN	Yidiny	YGB	'Yangeeberra'
YGD-N	Northern Yinggarda	YGD-S	Southern Yinggarda
YIM	Guugu Yimidhirr	YIN	Yinjibarndi
YUL	Yuribarija	YY	Yir Yoront

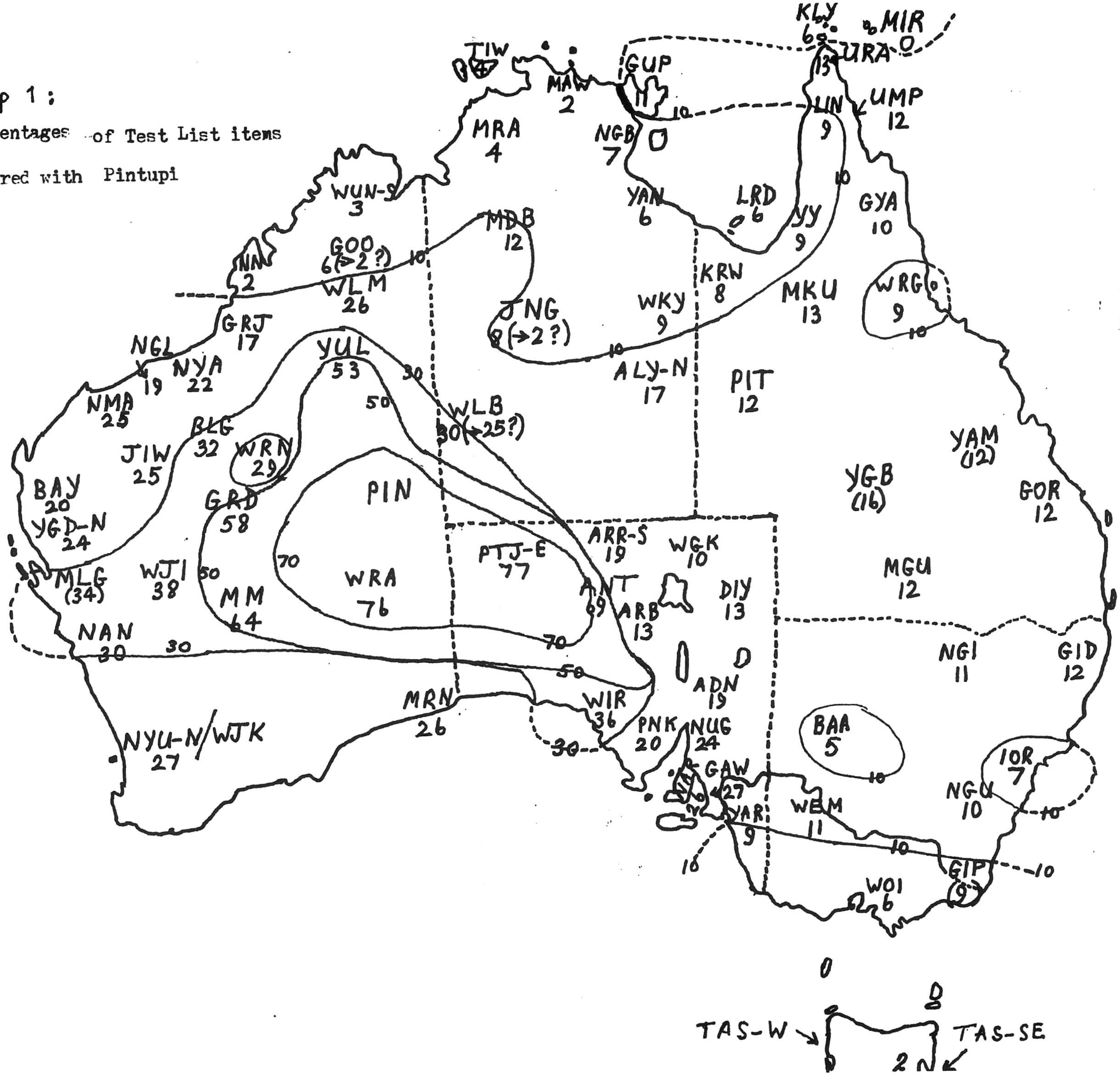
It is true, of course, that these lists do not include all the languages of Australia or even all of Pama-Nyungan. O'Grady mentions that some are not included for various reasons, especially no data, or poor data, or great similarity to another leading to redundancy, and so forth. Some well-known ethnographic Australians are not included – the Murngin of Arnhem Land for one example – because their society is part of another with a different language or tribal name. Nevertheless the sample, if not exhaustive, is certainly quite representative.

MAPS

Overleaf Geoff O'Grady has given us two maps to guide you through parts of his argument. Had ASLIP been a more affluent organization we would have given each member a replica of the original meter-square map drawn up by Stephen Wurm and his associates. **Map 1** shows the distribution of most of the acronyms listed above and thus the locations of the languages or tribes in question. It has another interesting feature. It includes a series of numbers associated with each acronym. For example BAA and NGU in New South Wales (southeastern Australia) have numbers 5 and 10 next to each one respectively. Each number reflects O'Grady's count of cognates between that language and Pintupi (PIN) in the western desert. Thus he finds 5% between Pintupi and BAA. Or 6% with KLY in extreme northern Queensland. It must be stressed that the numbers represent the number of cognates found on a 100-word list between Pintupi and each other Australian language covered, as scored by an expert on said languages . Clearly Pintupi is closest to other desert languages like WRA at 76% or PTJ-E at 77%. Or NMA in the far west at 25% is about as far away as GAW in southern Victoria at 27%. Most of New South Wales and Queensland have lower percentages than those, while the non-Pama-Nyungan languages of northwestern Australia have the lowest percentages. Since all these numbers refer to Pintupi, then percentages between Tiwi in the far north and Wolwurrung in the extreme southeastern corner would probably be lower still, maybe 0%-2%. That level of remoteness is typical of the African phyla, Niger-Congo, Afrasian, and Khoisan. The major question is what are the dates that these numbers reflect? **Map 2** shows greater complexity and detail in acronyms and calls attention to laminal features. It highlights the diversity of the northwest and the southeastern coasts.

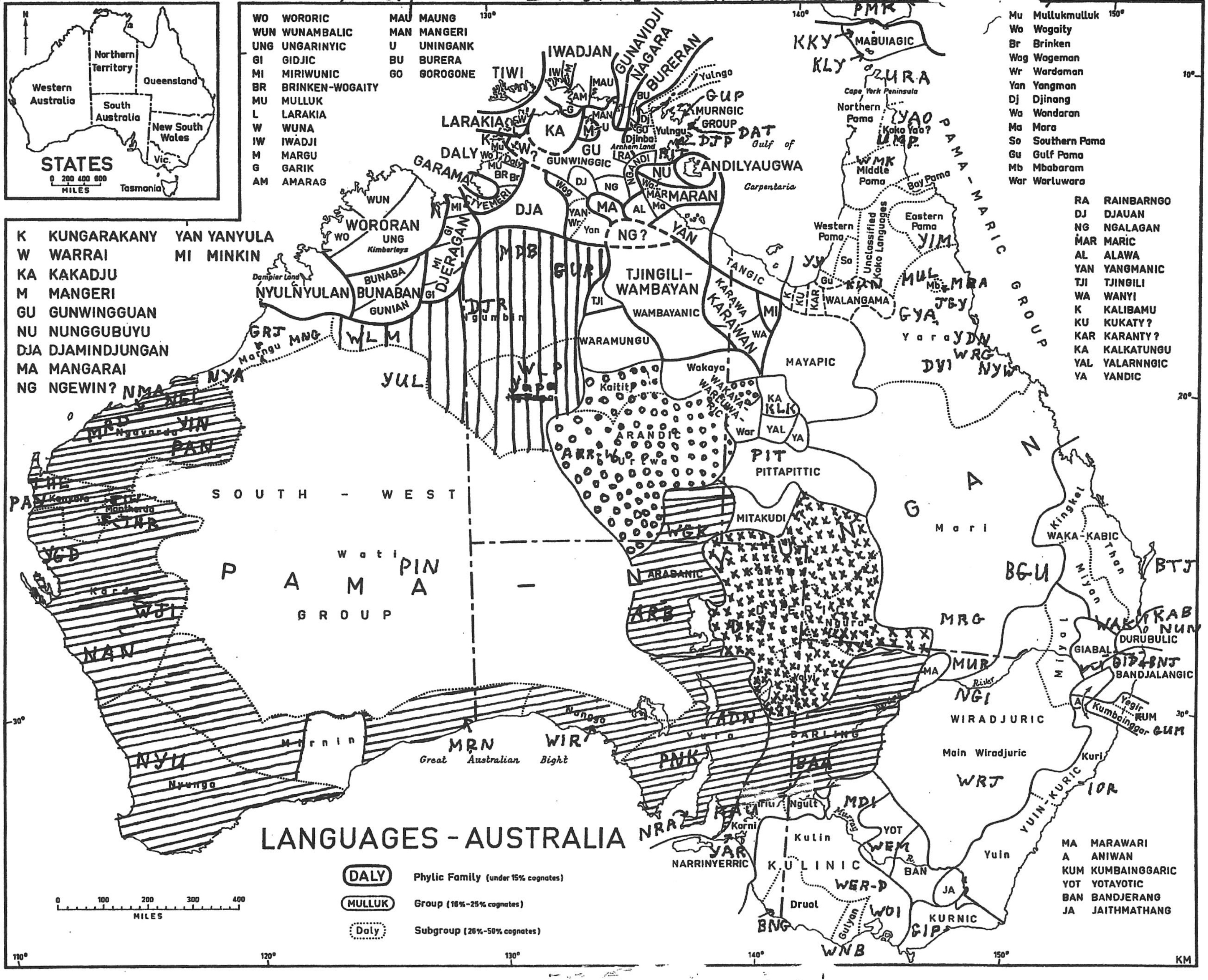
Map 1:

Percentages of Test List items shared with Pintupi



KLY 6
MIR 0
URA 0
13
TIW
MAW 2
GUP 11
10
LIN 9
UMP 12
MRA 4
NGB 7
0
10
GYA 10
WUN-S 3
MDB 12
YAN 6
LRD 6
YY 9
GOO 6(→2?)
10
NN 2
WLM 26
JNG 8(→2?)
WKY 9
KRW 8
MKU 13
WRG 9
10
GRJ 17
10
ALY-N 17
PIT 12
YUL 53
30
NGL 19
NYA 22
NMA 25
50
WLB 30(→25?)
YAM (12)
BLG 32
WRN 29
JIW 25
PIN
YGB (16)
GOR 12
BAY 20
GRD 58
YGD-N 24
ARR-S 19
WGK 10
PTJ-E 77
70
MGU 12
WRA 76
WJI 38
50
MLG (34)
MM 64
ANT 69
ARB 13
DIY 13
NAN 30
30
70
NGI 11
GID 12
50
ADN 19
MRN 26
WIR 36
PNK 20
NUG 24
BAA 5
NYU-N/WJK 27
30
10
IOR 7
GAW 27
NGU 10
10
YAR 9
WEM 11
10
10
10
GIP 9
WOI 6
0
0
TAS-W
TAS-SE
2

Map 2: Initial Laminalisation


STATES
Western Australia
Northern Territory
Queensland
South Australia
New South Wales
Vic.
Tasmania
0 200 400 600 MILES
WO WORORIC
WUN WUNAMBALIC
UNG UNGARINYIC
GI GIDJIC
MI MIRIWUNIC
BR BRINKEN-WOGAITY
MU MULLUK
L LARAKIA
W WUNA
IW IWADJI
M MARGU
G GARIK
AM AMARAG
MAU MAUNG
MAN MANGERI
U UNINGANK
BU BURERA
GO GOROGONE
K KUNGARAKANY
W WARRAI
KA KAKADJU
M MANGERI
GU GUNWINGGUAN
NU NUNGGUBUYU
DJA DJAMINDJUNGAN
MA MANGARAI
NG NGEWIN?
YAN YANYULA
MI MINKIN
Mu Mullukmulluk
Wo Wogaity
Br Brinken
Wag Wageman
Wr Wardaman
Yan Yangman
Dj Djinang
Wa Wandaran
Ma Mara
So Southern Pama
Gu Gulf Pama
Mb Mbabaram
War Warluwara
RA RAINBARNGO
DJ DJAUAN
NG NGALAGAN
MAR MARIC
AL ALAWA
YAN YANGMANIC
TJI TJINGILI
WA WANYI
K KALIBAMU
KU KUKATY?
KAR KARANTY?
KA KALKATUNGU
YAL YALARNNGIC
YA YANDIC
MA MARAWARI
A ANIWAN
KUM KUMBAINGGARIC
YOT YOTAYOTIC
BAN BANDJERANG
JA JAITHMATHANG
TIWI
IWADJAN
GUNAVIDJI
NAGARA
BURERAN
LARAKIA
DALY
GARAMA
DJA
WORORAN
NYULNYULAN
BUNABAN
DJERAGAN
GUNWINGGIC
MURNGIC GROUP
ANDILYAUGWA
MARAN
TJINGILI-WAMBAYAN
WAMBAYANIC
WARAMUNGU
KARAWA
KARAWAN
TANGIC
MAYAPIC
MABUIAGIC
PAMA-MARIC GROUP
ARANDIC
PITTAPITTIC
MITAKUDI
ARABANIC
SOUTH - WEST
PAMA - NYUNGAN
GROUP
WIRADJURIC
Main Wiradjuric
WAKA-KABIC
DURUBULIC
GIABAL
BANDJALANGIC
YUIN-KURIC
KULINIC
KURNIC
NARRINYERRIC
Great Australian Bight
Gulf of Carpentaria
Cape York Peninsula
Kimberleys
Dampier Land
Arnhem Land
PMK KKY KLY URA YAO UMP WMK YIM MUL MRA JBY GYA YDN WRG NYW DYI
GUP DJP DAT MDB GUR DJR WLP YUL WLM GRJ MNG NYA NMA NGL MRD YIN PAN THL PAY INR YGD WJL NAN NYU MRN WIR
ARR WGK ARB ADN PNK BAA NRA RAU YAR MDI WEM WER-D WOI GIP WNB BNG
BGU MRG MUR NGI WRJ IOR BTJ KAB NUN WAK BIP BNJ GUM
LANGUAGES - AUSTRALIA
DALY Phylic Family (under 15% cognates)
MULLUK Group (18%-25% cognates)
Daly Subgroup (26%-50% cognates)
0 100 200 300 400 MILES
110° 120° 130° 140° 150° 10° 20° 30° KM

PAMA-NYUNGAN AGAIN UNDER UNJUSTIFIED ATTACK!!

By Geoff N. O'Grady[2]
University of Victoria, British Columbia

Homo sapiens has been a talking animal for an estimated 150,000 years (McWhorter 2000:5). For the first 90,000 years of that time, the species continued to reside in Africa, its place of origin. Then, about 60,000 years ago, a movement out of Africa began which, eastward bound, was to lead to the relatively rapid peopling of Australia, New Guinea, and Tasmania (Turney et al 2001).

Thus, for better than 50,000 years, Australian Aboriginal people have continuously occupied that continent. By 1788 AD, the year when outsiders from Britain arrived at the site of present-day Sydney, there were about 600 named speech communities distributed throughout the continent. These six hundred communalects comprised about 260 distinct languages, judging from lexicostatistic counts (O'Grady, Voegelin, and Voegelin 1966; O'Grady, Wurm, and Hale 1966.).

Early writers, such as Grey (1841:II:214). observed that terms for " ..parts of the body, the pronouns, etc., and also verbs describing ordinary actions ..." showed a great deal of resemblance between the languages spoken at Perth in the west, Adelaide in the south, and Sydney in the east.

Curr (1886-1887) published vocabularies of about 120 items obtained by the questionnaire method in at least two hundred speech communities. He also pointed out the similarities between lexical items recorded on opposite sides of the continent as well as at many locations in the intervening area.

Schmidt (1919) proposed that Australian languages were to be divided into a 'Südgruppe' and a 'Nordgruppe', the Arandic languages of central Australia being assigned to the latter.

Kroeber (1923) mapped word distributions on the continent,

Capell (1956) proposed a division between 'prefixing' (actually prefixing-suffixing) languages, spoken in most of Arnhem Land in the north and in the Kimberley district in the northwest, and suffixing languages, spoken in the remaining seven-eighths of the continent,. including an enclave in northeastern Arnhem Land.

Capell was also able to reconstruct pronouns, nominal and verbal inflectional suffixes and 48 lexical roots which he assigned to 'Common Australian'. His criterion for the inclusion of an item – such as **pinang* 'ear' and **jinang* 'foot' – in the latter was that it occur in every mainland state of the present-day Commonwealth.

In 1961, Hale identified the Kimberleys and most of Arnhem Land as being an area of very great linguistic diversity. He postulated for that relatively small area 28 separate language families and language isolates.

Further, he argued convincingly that the remaining seven-eighths of Australia contained but one enormous language family, named by him 'Pama-Nyungan' after the terms for '(Aboriginal) person' in the northeastern and southwestern extremities of Australiua, correctly describing Pama-Nyungan as its 'largest coherent genetic linguistic construct'..

The genetic relatedness of the 170 Pama-Nyungan languages was and is apparent in cognate nominal case-marking suffixes (Blake 1977), cognate pronouns (Blake 1988).

---

[2] I thank the National Science Foundation (US) for Grant GS-1624, supporting my work in 1967; it was administered by the University of Hawai'i.

cognate verbal inflectional suffixes (Alpher 1990), and cognate word roots numbering in the four-digit range (O'Grady 1990, Fitzgerald 1997). In addition, Evans (1988) showed that Pama-Nyungan languages shared a laminalization rule which operated on pre-proto-Pama-Nyungan initial apicals **t* and **n*.

The evidence for the genetic relatedness of the Pama-Nyungan languages thus fulfills Hock's (1986:567) requirement that reconstructions which recover something like a thousand words plus a fairly complex morphological apparatus make a better case for linguistic relationship than attempts at reconstruction which recover, say, three per cent as much putative evidence. Any postulated 'proto-Australian would definitely fall into the latter category.

The Pama-Nyungan language family is thus to be likened to the Finno-Ugric with a time depth of approximately 4,000 years. O'Grady (1966) reconstructed the common ancestor of the ten languages of the Ngayarda subgroup in Western Australia, and identified those etymologies which, with further work, could be shown to be of proto-Pama-Nyungan age,

Dixon, a linguist who published excellent descriptive work (e.g., 1972, 1977, 1981, 1983, 1991) and made such an important contribution towards putting Australian linguistics on the world stage, nevertheless has, for over thirty years, made the unsupportable claim that there is a single Australian language 'family' and that Pama-Nyungan has no genetic relevance. (Dixon 1970, 1980, 1997, 2001, 2002)

Moreover, he has recently (2002) claimed that the Comparative Method is inapplicable in the Australian linguistic situation. In the words of McConvell (2003:257):

> "The Pama-Nyungan hypothesis has been rejected and scorn poured on scholars using that framework by Dixon (e.g., 2002:49), who has also called into question the applicability of the comparative method in Australia and proposed an alternative ultradiffusionist 'punctuated equilibrium' scenario for Australia and elsewhere."

McConvell goes on to point to the successful comparative work on the Karnic subgroup by the scholars Koch (2001) and Bowern (2001) and concludes that the Comparative Method is in fact 'alive and well' in Australia.

Another subgroup of Pama-Nyungan to which the Comparative Method was applied with conspicuous success was Pamic of Cape York Peninsula. The data on the following page are from three papers published by Hale in 1976. Languages which in the past were thought to be unAustralian – perhaps Papuan – were shown by Hale to be not only of the Australian phylum but in fact of the Pama-Nyungan family, and quite closely related.

Hale was easily able to erase the effects of the drastic sound changes in such languages by reconstruction. He thus demonstrated, for example, that Awngthim item #7, *nga-* 'dig' was cognate with *pangi-rni* 'dig'; in Warlpiri, spoken half a continent away, and that Awngthim item #10, *lay-* 'we' (dual inclusive) had cognates of the shape *ngali* in a large number of Pama-Nyungan languages spoken over most of Australia. Similarly, Awngthim item #11, *may-* 'mother's mother', is cognate with Nyangumarta *kami + ji* 'mother's mother' , (the *+ji* being a reflex of the **-ju* portion of proto-Pama-Nyungan **ngaju* 'my'.)

Mother Tongue readers might wish to put themselves in Hale's shoes and do the following exercise. (*th, dh, nh* are laminodentals; *ng* is the velar nasal; *oe* is shwa)

The Power of the Comparative Method: Uradhi, Awngthim, and Wik-Mungkan

(data from Hale 1976a-c)

	URA	AWN	WMK	Reconstr	Gloss
(1)	wunga	ngwa	pung	*_______	‘sun’
(2)	wungku	ngku	pungk	*_______	‘knee’
(3)	uma	mwa	thum	*_______	‘fire’
(4)	ungki-dhu	ngkwa-th	kungk	*_______	‘north’
(5)	ipi	pi	pip	*_______	‘______’
	‘water’	‘water’	‘mud’		
(6)	ama	ma	pam	*_______	‘person’
(7)	anga-	nga-	paang		
	‘dig’	‘dig’	‘feel water with spear or stick to see if it is deep or shallow’		
				*_______	‘_______’
(8)	---	oenha	waanh		
		‘heart’	‘liver’	*_______	‘_______’
(9)	wula	oelwa	puul	*_______	‘father’s father’
(10)	ali(-bha)	lay-	ngal	*_______	‘we DU INC’
(11)	ami	may-	kem	*_______	‘mother’s mother’
(12)	ibhi-dhu	oebhe-th	yiip	*_______	‘south’
(13)	ibha-dha	---	piip	*_______	‘father’
(14)	winta	ntrya	---	*_______	‘arm’
(15)	anta	ntra	want	*_______	‘leave it’
(16)	minha	nhya	minh	*_______	‘animal, meat’

The proto-Pamic reconstructions are: (1) *punga
(2) *pungku (3) *thuma (4) *kungka
(5) *pipi ‘water’ (6) *pama (7) *paanga ‘dig’
(8) *waanha [an internal organ] (9) *puula (10) *ngali
(11) *kami (12) *yiipa (13) *piipa
(14) *pinta (15) *wanta (16) *minha

The principal developments in Uradhi (in these data) are: lenition of initial **p* to *w* before *u* (but note (14)); loss of initial consonants other than **m*; split of intervocalic **p* to *p* after short vowels and to *bh* after long vowels; merger of long vowels with short.

The main developments in Awngthim are: loss of all initial consonants; metathesis of the first vowel with the second consonant in roots containing one low vowel; merger of long vowels with short (with a shwa remnant in the former position of the long vowel); desyllabification; insertion of *r* offglide to medial **t*.

And in Wik-Mungkan: umlaut; loss of final vowels.

These data constitute strong support for the regularity hypothesis. But perfect regularity is an unattainable chimera (think of all those unexplained 'variant forms' in Indo-European studies!)

We will see in the following pages that a number of sporadic changes, such as the unexpected appearance of a nasal where a stop should appear, intervene to spoil the rosy picture. (This particular sporadic change, by the way, occurs not only in Pama-Nyungan but also in Austronesian (Blust 1990) and in the Trans New Guinea Phylum (Pawley 1998(+))

Nevertheless, the Comparative Method remains an immensely powerful instrument, and no Austronesianist or Papuanist has, to my knowledge, ever asserted that the Method is inapplicable to their particular fields of study.

It was noted earlier that Hale (1961) proposed twenty-nine language families and isolates for the Australian continent. Wurm (1972) reduced this number to twenty-seven. Shortly before Hale's death in October 2001, he intimated to Hal Fleming (personal communication) that he believed Wurm's conclusion concerning the number of families and isolates to be approximately correct.

However, Evans and Jones (1997:386) claimed to have reduced Wurm's figure of twenty-seven to just ten families. Moreover, they reclassified Yanyuwa, a prefixing language, as Pama-Nyungan, and the former Tangkic Group of Pama-Nyungan as a separate family, Tangkan. Their map does include a category of 'Other non-Pama-Nyungan' which embraces languages as diverse as Tiwi and Nyul-Nyul. So perhaps the number of families and isolates will eventually even out at about a dozen less than Hale's original twenty-nine.

Evans and Jones (1997:393) provide valuable insight into the question, 'What are the nearest coordinate relatives of the Pama-Nyungan Family?' In their diagram, Karwan, the new Tangkan, and Gunwinyguan appear as successively more remote relatives of Pama-Nyungan, with an ultimate time depth which, I would hazard, lies at approximately twice Pama-Nyungan's 4,000 years.

If this line of reasoning were to be extended to its logical conclusion, we would almost certainly end up with the Tiwi of Bathurst and Melville Islands, off present-day Darwin, arguably separated from other Australian languages by a time depth of anything from 12,000 to 20,000 years. Tiwi's first person pronouns in ng- provide wisps of evidence of ultimate genetic relationship.

Since this paper is a continuation of O'Grady (1998), I offer here a brief summary of the latter.

The ongoing project is a 'Top Down' type of study (cf Pawley 2001) which involves up to sixty Pama-Nyungan languages. Increasingly, however, I have come to settle for cognates from three to five genetically and geographically far-flung tongues.

Future scholars may wish to fill in gaps from as many as 167 additional Pama-Nyungan languages as well as from the ninety non-Pama-Nyungan .

My focus is on the uncovering of a large number of solid as well as _potential_ cognate sets. Future work will surely invalidate some of these; but others will be vindicated.

A large part of my 1998 paper is devoted to a number of problems which arise in Pama-Nyungan's comparative work. These occur on the phonological, morphological, and semantic levels.

Phonological innovations in Pama-Nyungan occur for the most part with Neogrammarian regularity, but a number of sporadic changes do occur. It is relevant here to quote Pawley (1998+;678) on the comparative situation in the Trans New Guinea Phylum:

... "it would be unwise to reject all apparently irregular forms that are not obviously the product of sporadic processes that are known to us from many language families, such as assimilation , dissimilation, metathesis, lenition, or analogical reformation of a member of a paradigmatic set. Certain types of sporadic changes are common in Papuan languages which might be called 'one step feature shift'..."

Such changes occur in Pama-Nyungan and Austronesian also. Notable in the former are

(1) Initial nasal gradation as in proto-Nyungic * _purtu_ 'in vain' > Northern Nyungar _murtu_, versus the expected * _purtu ;_

(2) Medial gradation as in spPN (sub-proto-Pama-Nyungan_)_ *_kupi_ 'hide' > Umpila _kumi_ 'lose'_;_

(3) Medial prenasalization as in spPN *_ngaka_ 'send' > Umpila _ngangka_ 'give';

(4) Initial softening (lenition) as in spPN *_kUkal_ 'firedrill' > Nyangumarta _wungkal + ka;_

(5) Initial dropping (with subsequent y-prothesis) as in pDN (proto-Desert Nyungic) *_karlti_ 'call' (> *_arlti)_ > Pintupi _yarlti-ngu_;

(6) Intervocalic weakening as in spPN *_taparr_ 'round' > Umpila _taway_ 'moon' (the development *_-rr_ > _-y_ is regular);

(7) Vowel fronting as in pPN (proto-Pama-Nyungan) *_kulum_ 'louse > Yidiny _kuli_ ;

(8) Assimilation as in pPN *_kUpa_ 'stoop, bend down, drink' > Pintupi _pupa-ngu_ 'kneel, stoop';

(9) Dissimilation as in pPN * _palya_ 'fat,grease' > Nyangamarta _paja + rli_ 'fat, dripping';

(10) Metathesis as in pPN _kipam_ 'moon' > Kaurna _piki_, Northern Nyungar _mika;_

_(11)_ Analogical reformation as in pPN *_nhupalu_ 'you two' > Umpila _ngu'ula,_ influenced by reflexes of pP (proto-Pamic) first person forms in *_ng_ and of pP *_pula_ 'they' (DUAL).

On the morphological level, two kinds of stem enlargement are in evidence. Such additions for the most part appear to carry no semantic weight. Wordick(1982) quite rightly calls the first kind 'contentless suffixes'. A clear example is seen in Eastern Walmajarri _kuka + ri_ 'news of a death', cognate with Walmajarri _kuka_ 'news of a death' and with far-off pP (proto-Pamic) **kuuku* 'language, speech' from spPN **kuuka* 'language, speech, news, story'.

The second type of contentless stem enlargement involves the insertion of a noncoronal stop (*p* or *k*) immediately after the second consonant of a root. Thus pPN **pinang* 'ear' descends in Northern Nyangumarta, on the one hand, as *pin* + *k* + *a* 'sea shell' and on the other in *pina-karri-nyi* 'hear'. (This semantic connection is also found in Umpila *yampa* 'ear' and Martuthunira y*ampa* 'sea shell'. from spPN **yampa* 'ear'..

On the semantic level, I observed (O'Grady 1998:215) that meaning change in Pama-Nyungan 'constitutes a vast panorama' on which the scholars Evans (1997) and Wilkins (1996, 1997) have carried out deeply impressive studies.

Of the many aspects of semantic change in Pama-Nyungan, I single out here, as an example, change to the polar opposite. Thus spPN **piipa(l)* 'mother' descends as *pipi* 'mother' in Nyangumarta but as *piip*i 'father' in Umpila.

Similarly, pP **punga* 'sun' may appear at first blush to be without cognates elsewhere in Pama-Nyungan, but in fact it is as one with Kaurna *punga* 'shade, shadow' and Diyari *punga* 'humpy, house'. But this is not all! Pintupi *munga* 'night, darkness' belongs in the same basket, with the proviso that its *m-* is deemed to be the outcome of sporadic change, mentioned earlier. In the presentation of such a cognate set, we follow Pawley's example and list the Pintupi form separately under a heading of 'Residue', rather than discarding it.

The reader may well question the validity of my proposal that a term for 'sun' is cognate with one for 'night'. But remember that there are 170 Pama-Nyungan languages! These afford the luxury of checking for **independent** evidence that the association of 'sun' and 'night' recurs elsewhere in the family.

And it does: in Nyangumarta, *karrpu* is 'sun', and in Ngawun *karrpu* is 'night, dark'! Hence the reconstruction of spPN **kArrpu* 'sun' (the *A* is needed in the reconstruction, since vowel length was distinctive in pPN, and neither of these two languages is diagnostic for that feature).

The types of semantic change found in such families as Indo-European also occur in Pama-Nyungan – narrowing, widening, metaphor. etc. Consider the following set:

Nyangumarta	yirri-rni	'see'
Panyjima	yiti+pi-lku	'stare at'
Gumbaynggir	yirri+li	'peer at'

Nyangumarta and Panyjima belong together in the Nyungic subgroup of Pama-Nyungan, while Gumbaynggir, on the other side of the continent, forms a separate group. We reconstruct for pPN **yirri-* 'stare/peer at', since distantly related Panyjima and Gumbaynggir essentially agree semantically in this semantic set. Thus 'see' in Nyangumarta represents a widening in meaning. (Incidentally, note *yirri* 'see' in a non-Pama-Nyungan language, Mangarrayi).

As to the development **rr* > *t* in Panyjima, here is a further cognate set which, incidentally, provides an additional example of antonymic semantic change:

Mirniny	kurra + rtu	'short'
Panyjima	kuta	'short'
Gupapuyngu	gurri + ri	'short'
Yidiny	kurran	'long'

The Mirniny and Gupapuyngu forms contain recent accretions. The second vowel in GUP has assimilated to the vowel of the accretion. The _–n_ in Yidiny ia taken to be the original. The languages showing semantic development to the polar opposite are manifestly in the northeast of the continent. Hence the reconstruction is spPN *_kUrra(n)_ 'short'.

Following Koch (personal communication, August 2000), I hereby revise the consonant inventory for (s)pPN from that given in O'Grady (1998:217) to include a laminodental series: stops *_p,_ *_th._ *_t,_ *_rt,_ *_j,_ *_k_ ; nasals *_m,_ *_nh,_ **_n,_ *_rn,_ *_ny,_ *_ng;_ laterals *_lh,_ *_l,_ *_rl,_ *_ly;_ flap/trill *_rr_; and glides *_r,_ *_y,_ *_w_. The vowels were short *_i,_ *_a,_ *_u,_ and long *_ii,_ *_aa,_ *_uu_. A short : long contrast occurred only in the first syllable. Stress fell on the initial syllable.

In what follows, the reconstructions have yet to be adjusted to allow for additional laminals *_th,_ *_nh,_ *_lh_ in accordance with what Koch convincingly argued for. The plausibility of each putative cognate offered is rated on a scale from 1 (least plausible) to 5 (ironclad). The cognate sets are a continuation from the 25 offered in O'Grady (1998).

What follows is a summary of that paper. Since the work of Grey, Curr, Schmidt, Kroeber, and Capell it has been self-evident to any linguist with a modicum of Sprachgefühl that at the time of first settlement by Europeans in 1788 Australia was host to a large Finno-Ugric-like assemblage of languages comprising roughly two-thirds of the 250 languages spoken in that continent.

It has been almost an article of faith for many Australianists that the reconstructible lexicon of proto-Pama-Nyungan amounts to a few score of items only. The purpose of what follows is partly to bring about a drastic upward revision of this estimate by seeking cognates primarily from those languages with quite large dictionaries – about one-eighth of the total number of Pama-Nyungan languages. (This will leave plenty of room for filling in of gaps by future scholars.) A perusal of cognate set K856 *_kuma(n)_ 'one, unity', for example, will help the reader to appreciate something of the richness of the ancestral Pama-Nyungan lexicon.

My philosophy in Pama-Nyungan cognate search continues to be characterized by strict adherence to the principle of regularity of sound change. At the same time, I recognize that some changes do occur sporadically, and those are discussed in some detail in O'Grady (1998) and above. One such change is the sporadic fronting of back vowels, witnessed also in Austronesian, for example. All instances of sporadic change are relegated in what follows to a category of 'residue' so that future scholars will be able to study them further.

In accordance with the philosophy of Meillet (1967), I have listed below forms which are **probably** cognate or even **conceivably** cognate as well as those which are ironclad. Therefore I have set up a scale of 1-5 in an attempt to quantify the degree of plausibility which I ascribe to the various etymologies. I doing this, I allow for the possibility that future Australianists may know of additional evidence which may enable a weak PR (plausibility rating) – say a 2 – to be raised to a higher figure.

Due especially to the work of Koch (1997), the reconstructions with *_j,_ *_ny,_ and *_ly_ below need ultimately to be revised to allow for the *_j_ : *_th_ : *_ny_ : *_nh_ and *_ly_ :*_lh_ contrasts in (sub)-proto-Pama-Nyungan which he convincingly argues for.

The presentation of putatively cognate material now follows.

J26a	spPN	jAla-	run	
	PAY	jala-ma	run, flow, play	4
	KLY	ZILA-MI	run	4
	GYA	jala.ma-l	jump, hop, skip	4

J26b	spPN	*jAmpi	rib	
	pNG	*th ampi	rib	4
	GUP	dj amu.rr	rib	3
	KLK	y ampi	rib	4

The *–rr* enlargement has been observed to affect the quality of the preceding vowel (Hendrie 1990). The loss, in GUP, of the stop in a homorganic nasal + stop cluster is regular. The lenition of the initial in Kalkutungu is confirmed in KLK *yara* 'kangaroo's pouch' with which compare NYA *jara* 'kangeroo's pouch', cognate with PAN *thara* 'mouth', GUP *dhä* 'mouth, door. opening', WMK *thaa'* 'mouth, opening', BNJ *jeerang,* GID *jeeyang* 'mouth, from pPN **thaarang* 'mouth, opening'.

J27	pPN	*jAmpi-	lick	
	WLP	jampi-rnu	lick	5
	WOI	jampa-	lick	5

Residue: Initial Nasal-Gradation, which is sporadic in nature whether in Pama-Nyungan or Austronesian (Blust 1990, 1996), has produced PNK *NAMBI-TI* 'lick' 4. Compare the NYA-S form in J24. Schürmann's (1844) initial nasal was almost certainly */nh/.*

J28	pPN	*j(A)nga	[term rel to ingestion]	
	NYA-W	janga	saliva; tree sap; oyster, barnacle; foam, spray; froth	4
	WLM	janga.rla	froth on floodwater	4
	KLY	DANGA, dhaanga	tooth, ..edge	3
	WMK	aang (Avoidance form)	mouth	3
	MUL	janga	mouth	3
	BAA	thanga	mucus ...; pus	4
	BNG	thanga	tooth	3

The degree of semantic agreement between the NYA-W, WLM and BAA forms seems promising enough for a plausibility rating of 4 (the phonetic correspondences being perfect). In Indo-European studies, we have cognates as dissimilar as Armenian *erku* and Spanish *dos* (<**dwo*), but in Pama-Nyungan, cognates are often identical or nearly so, despite a divergence period of something like 4,000 years.

For this reason, the semantic differences between the KLY/BNG forms and the others are not felt to be so great as to exclude the possibility of cognation's eventually being demonstrated. Add to this the following evidence, (supporting sermantic links – HF)

PIN	karti.rti	tooth
UMP	kati	saliva
YIM	katil	name; music sticks

< *spPN *kartil* 'tooth',

in turn supported semantically by YDN *tirra* 'tooth; name; seed; hail'. From pPN **rirrang* 'tooth' from pA (proto-Australian) **rirra.*

J29	spPN	*jAngi	firestick	
	WLP	jangi.li.li.n.pa	waning moon	3
	PIN	jangi	firestick	3
	PIT	jangi ~ nyangi	moon	4

Residue: In pKR, the reconstruction offered for moon is nasal-gradated **nyangi* 4. It is clear from the above that this needs to be corrected to **jangi* in the overall Pama-Nyungan context. Note also WLP *jaki.liny.pa* 'new moon'.

In many culture areas, firestick could not conceivably be semantically relatable to moon. Given the Australian cosmogony, however, a plausibility rating of 3 for this association does not appear excessive; the moon's brilliance is evidently likened to that of a firestick.

J30	pPN	*jangka(rr)	calf of leg	
	NYA-W	jangka. La	calf of leg	4
	WLM	jangka. rla	shin	3
	WMK	yangk	lower leg	3
	GUM	jangkaarr	calf of leg	4

The *–rr* in the GUM form is taken to be original. The enlargement in NYA-W is probably *–rla,* but this cannot be assumed, due to my being partly retroflex-deaf in my earlier years of studying Nyangumarta (1949-1955).

Residue: GOE *jangarr* 'leg' 3, pCNSW **thanga* 'heel' 2

J31	pPN	*jang(k)u-	chew	
	NYA	jangu	cooked tobacco	3
	WLM	janga-rnu	chew	4
	WLP	jangku.ly.pa	cooked tobacco	3
	UMP	yangku-ya	eat	3
	GYA	jangku.y	sound of chewing	3
	IOR	djanga-	chew	4
	WOI	dhanga-	eat	3
		dhangi-j	food	3

Lenition of **j-* to *y-* in Pamic is discussed under J24. The GYA form appears to be a deverbal noun. The semantic agreement between WLM, GYA, and IOR lends support to any proposal of cognation, but the possibility that IOR < -NG -> could represent */-nk-/*, */-*

ngk-/ or /*-ng-*/ leads me to suggest a plausibility rating of 4 only. Supporting data are needed – especially alternate spellings of 'chew' in IOR with <-NG-K-> or <-NG-G->, or a cognate from a language more closely related to IOR.

Residue: WJI *jaku.ja* chew 2

J32	pPN	*janka-	tie, join, connect	
	NMA	janka-lku	tie up	5
	JIW	jankaa-ru	join; tie	5
	GUP	dhan=gi'.yu-n	embrace	4
	JGY	janki-l	get stuck	3
	YDN	janki-L	get caught	3
	BGU	thanki.ny	sinew ('for tying'?)	3
	GID	janka.ny	lightning ('connector' twixt cloud & earth?)	3

I take the shift from –a to –i at V_2 to result from the effect of a following laminal. The long vowel in JIW and the glottal stop in GUP are apparently secondary developments. Semantically, GUP embrace is supported by independent evidence from UMP, in which *kampal katha-la* is 'embrace' and *katha-la* alone is 'tie'. JGY 'get stuck' and YDN 'get caught' are comparable to English 'get tied up in the traffic'. Just as NYA *karrpi-ri* 'string' is a deverbal noun from **karrpi* 'tie', so is BGU thanki.ny similarly descended from **janka.*

As suggested, 'lightning' is conceivably viewed as 'tying a cloud to the earth'. Alternately, however, GID *janka.ny* could be a cognate of WLP *janka-ja* 'burn, cook'. For BAA *thanki-* 'stick out, stand up for somebody else' 1, a status as a true reflex of **janka* seems the least plausible. It is conceivable, however, that it refers notionally to 'tying/allying oneself' to a condemned person in a sense similar to that suggested in Hendrie (1990). He proposes a connection between GID *tipaal* 'team, group' and *tipa-* 'sew' (from pPN **tipa).*

J33	pPN	*jaany(j) V	quick	
	NYA	janyi.n	quick(ly)	4
	WMK	yanth	very smart, quick	3
	GID	jaany	quickly, suddenly	4

The NYA form has gained an *–n* accretion. The WMK reflex exhibits lenition of **j-* to *y-*, as in J24 and J30, and with its *–th* points to an alternation in the protoform, involving a second **j.* In GID reduction of the second syllable has occurred, as also in pPN **junkan* > *jun* 'tail', *lhaarrka* > *yaarr* 'imitation, copy', and **murlku* > *mul* 'short'.

J34	pPN	*japa(ng)	path, track, road	
	ADN	yapa	path	5
	KAU	TAPPA	pathway, road	4
	GUP	dhapa	heel	3
	YAN	a-yapa.la	path … road	5
	KLY	IABU, yaabu	path, road	3
	WRJ	yapang	path, track	4

	BAA	yapa	track, footprint	3

ADN *y-* from **j-* constitutes a regular sound change. The initial coronal stop in the KAU form was, in all likelihood /*th*/.YAN is known to have been host to Initial-Softening, as in *wipi* 'mother' < pPN **piipa(l)*. The status of IS in KLY, WRJ, and BAA is less understood. It is found in BAA in J14, however.

The semantic connection between 'footprint' and 'path' seems to be one of Potential versus Actual (O'Grady 1960). That between 'track' and 'heel' is paralleled by PAY *juka.rra* 'foot', UMP *thuki.la* 'track him', GYU *juka* …'back of heel' and YDN *juka* 'heel' (pPN **juka*).

J35	pPN	*jarlany	hole, opening	
	GUP	dhaɭ a.ka.rr	hole, window, opening	4
	GID	jalany	throat	3

GUP has enlargements *–ka* and *–rr,* both documented in O'Grady (1966). The loss of the final nasal outside of parts of the East is apparent in GUP. In GID, the eastern Australian merging of retroflex **rt *rn *rl* with apicoalveolar sounds is in evidence. For the semantic connection between 'hole' and 'throat', I suggest a plausibility rating of 3.

Residue: PIN *yarla* 'hole not in ground' 4. See J3.

J36	spPN	*jArlti	ear	
	NYA	jarti	bat (all 'ears')	5
	WLP	jarti	bat	5
	NRA	TUL-TEE		
		tharlti	ear	3
	BAA	thalti	hear, listen	2
	KKY	thali.nga	ear	3

More cognate sets are needed to ensure that cluster reduction from **-rlt-* to *–rt-* took place regularly in the immediate common ancestor of NYA and WLP. The appearance of the sequence *–lt* and not **-rlt* in BAA constitutes a problem.

That 'hear' and 'ear' are potentially related in Pama-Nyungan languages is seen, for example, in NYA-W *pina.karri-nyi* 'hear' from pPN **pinang* 'ear'. It seems plausible that 'bats' could be named in some languages for their prominent ears. Compare, moreover, pP **milka* 'ear' with PNK *MILTYI.NYE* 'bat' where the enlargement evidently /*-nyi*/ could have triggered the raising of a V_2 **-a-* to *i.* This in turn may have palatalized an earlier **-k-* to –TY-, i.e., *-j-*.

An examination of terms for 'bat' in additional Pama-Nyungan languages reveals THL, JIW *mika.lya.ji.* Since there is a lateral in the first of the two enlargements here, it is reasonable to enquire whether the *mika-* portion is a reflex of earlier **milka* (see above). The latter would have lost its l through haplology as a result of the addition of the -**lya* enlargement.

A forther reflex of **jArlti,* albeit phonologically a barely conceivable one (with a rating of 1), KLY *TAUTIL* 'artificially elongated ear-lobe'. Could it , though, contain an *–aw-* like diphthong reflecting the *–Arl-* portion of the protoform? (Shades of Polish!) The plausibility of cognation would be enhanced if Haddon's (1907) *T-* were to turn out to be *th-*, on latter-day examination. (The above would be at variance with KKY *thali.nga* 'ear', just noted).

J37	pPN	*jArna	back	
	NYA-W	jarna.nga	piggy-back	4
	WLM	jarna. ka	piggy-back	4
	WLP	jarna-	shoulder, yoke	4
	PIN	jarna	position with backs to centre of attraction	5
	KAU	TARNA	[back of]	4
	PNK	YERDNA	spine	4
	NGL	jarna	back, rear side	5
	BAA	tharna	back	5

Teichelmann and Schürmann's (1840) KAU *T-* would almost certainly have represented /*th-*/. The reflection of pPN **j-* in PNK as *y-* is regular – see J11. The WLM form contains an enlargement. NYA-W *.nga* is a frozen LOCATVE element.

The semantics of this set is particularly stable.

Residue: NGL *yarna* 'prop, back-rest 3

J38a	spPN	*jarntal	ankle	
	NYA-L	jarnta	lame	3
	WLP	jarnta.rru	kneeling	3
	NYU-E	thaarnt	ankle	4
	GYA	jantal	leg	4

The WLP form contains an enlargement.

J38b	pPN	*jarrang	thigh	
	MDB	jarru.mu.lu	leg, thigh	3
	ARB	tharra	thigh	5
	KKY(SAI)	thoera	reef ...shin	4
	PP	*jarra	thigh	5
	UMP	thaarra	reef	3
	BNJ-W	tharrang	thigh, confluent river	5

Anticipatory assimilation (of the second vowel to the third), as in MDB, is found widely in Nyungic languages. The long vowel in the UMP form is anomalous.

J38c	spPN	*jArra	branch, fork; duality	
	PIN	jarra	fork of branch, divide into two groups	4
	KLY	ZAR	branch, bough	4

NYA *jirri* DUAL 3 is probably a further cognate. For the parallel evolution of a term for 'two' in Ganalpingu (GNL), *maltja.rna*, see M15 **mAlyja* 'branchy, forked, bifurcating'.

J39	pPN	*jarra-	stand	
	NYA	-jarri-nyi	become, INCHOATIVE	4
	WLP	-jarri.ja	VERB FORMATIVE	4
	PIN	- rri-ngu	VERB FORMATIVE	3
	PNK	-RRI-TI	VERB FORMATIVE	2
	PAY	-tharri-ma	INCHOATIVE	4
	GUP	dhärra	stand	4
	pAR	*-erre	become	4
	pCK	*tharrha	fly	2
	KLY (Haddon)	TARI	set down, as foot on ground	3
	KLY (Bani & Bani)	thaari	run	3
	pP	*jarra	stand	5
	JGY	jarra-l Vtr	stand up	5
	BAA	thaarri-	stand, wait	4
	WER-D	jarri.ka	stand	4
	WOI	dharri.ji	stand	4

Residue: Incretion, characteristically involving the insertion of –p or -k- after the second consonant of a root in Pama-Nyungan, has occurred in pKR *tharr.k.a 'stand' 4.

Since we take Proto-Pamic to be diagnostic of ancestral Pama-Nyungan vowel length, the long vowels in the GUP and BAA forms are anomalous. (More work on this problem is clearly needed.) For the moment, the plausibility ratings of these two languages are set at 4.

J40	pPN	jarra (r, ny)	frog		
	PIT	jarra.l.ku	big green frog	4	
	pP	*jata	green frog	4	
	UMP	thata	green frog	4	
	WMK	that	sp. frog		4
	GID	jarra.nny	frog (generic)	4	

Residue: NMA *jarr.k.a.ra. (r)n* small …frog 4, and
jarr.k.a-warni-ku 'puff out …of cheeks 4.

Etymologically, this set may relate to J39 through the notion of the PUFFING OUT/STANDING OUT of a frog's cheeks, a meaning still preserved in NMA.

Incretion involving *–k-* has occurred in NMA, as also in the pKR reconstruction of Austin's given in J39. The shift of **-rr-* to *–t-* in Pamic has precedents – cf **kurra* 'dog'. Prenasalization of *-t- in YIM thantaar 'frog' 3 and of *-rr- in NGI thantaayN- 'frog' 3 have both yielded –nt-, as is usual in Pama-Nyungan. Accretions are in evidence in NMA and PIT.

J41	spPN	*jarrpa.	enter, set (sun), hide	
	PIN	jarrpa-ngu	enter	5
	NYU-N	DARBA.L	estuary	3
	NYU	tharrpu	swim	3

pNG	*tharrpa	enter, set…	5	
NMA	tharrpu.rl	sp. crab	3	
pKM	*tharrpa-	enter	5	
JIW	tharrpa-yi	go in, enter, set		5
GUP	dharrpa-n	hide	5	
UMP	tharr'i.mu	long sea grass	3	
WMK	yerrp.ang-an	pull out		2
DYI	jarrpa-l	join on	4	

I take the _D-_ of the NYU-N form to have represented _/th/._ The UMP innovation of _*-p-_ to glottal stop has a parallel in PP _*pipi_ 'water' > UMP _pi'i_ (Hale 1976c). The change in which _*j-_ > WMK _y-_ is also found in other sets. Variation in the reflexes of the V_2 _*-a-_ in NYU, NMA and UMP, which cannot be readily motivated, have to be considered in light of the fact that in pPN primary stress fell on V_1. The second vowel thus frequently fell prey to various kinds of pressures, especially assimilations. The NYU-N, NMA and UMP forms each contain an enlargement.

NYU-N 'estuary' is evidently viewed as the entrance of a river into the sea. Swimming involves entering water (cf _*kAya.rri-)._ In NMA, 'crab' is the creature which enters or hides under rocks, seaweed or sea-grass, while in UMP long sea-grass could be seen as providing a hiding place for such creatures..

Not all linguists will agree with such proposals, and indeed I am suggesting a plausibility rating of just 3 for the NMA and UMP forms. There is an objective way to test such hypotheses – especially in Pama-Nyungan, where there are 170 languages to study: simply call up all of the terms in Pama-Nyungan languages for enter/set/hide, crab and sea-grass, and seek out roots in addition to _*jarrpa-_ which appear to recapitulate an enter…: crab : sea-grass semantic relationship. For example, is there a verb 'to enter' in any Pama-Nyungan language which is cognate with UMP thuki 'blue crab'?

Yet again in the presentation of these cognate sets – cf the WMK reflexes at J24 – this language appears to have undergone Antonymic Semantic Shift in one of its forms: ENTER > CAUSE TO ENTER (see DYI 'join on') > PULL OUT.

J42	pPN	*jAru	language, word, news	
	DJR	jaru	Djaru (language, people)	5
	MDB-W	jaru	language	5
	PIN	jaru	speech	5
	JIW	tharu	bad news	4
	PIT	tharu.pa-li	speak	4
	GUP	dhäru.k	word	4
	IOR	DHARU.G	[name given to Sydney language]	3

Despite the fact that the enlargements in GUP and IOR are identical, I take it that each was added to the root _*jAru_ independently of the other. The earlier form of _–k_ would have been _*-ka_ (cf NYA _walya.ka_ 'leaf' versus PAY _walha.rti_ 'leaf'). At a still earlier stage in the history of Pama-Nyungan, the form would have been _*-kan._ In modern GID, this descends with the final nasal still intact, i.e., *-kan*, a marker of FEMININE gender.

The naming of the Sydney language as Dharug is paralleled in Western Desert usage, where *wangka* ‘language’ appears in various names: and *kuka* ‘language’, cognate with pP *kuuku*, occurs in “Kukatja” and “Kokata” (as pointed out to me by Hale).

J43	pPN	*jAya-	send, throw	
	GUR	jaya-	give	3
	pNG	*thaya.lku	send	4
	GUP	dhayu.nga.n	send	3
		djuy.’.yu-n	send	4
	KLY	TA-I		
		thaya-n	throw; trip him (cf ENG ‘send him sprawling’)	4
	MPL	aya-	give	3
	GYA	taya- (sic)	give	3
	YDN, Ja	jay.ma-L	give	3
	WOI	dhaya.l.k	rain (‘sent’)	2
	YAR	TAIYI-N	sending	4

The first GUP form has an unexplained *u,* while the second contains an anomalous glottal stop. The loss of V_2 and the anticipatory assimilation of the **A* of **jAya-* to the *u* of the formative *–yu-n,* however, have numerous precedents in this language. Compare GUP *yap.thu-n ~ yup.thu-n* ‘descend’.

Residue: PIN *yiya-rnu* ‘send 2. In YAN *jantha-rra* ‘sending 3 may be a reduced form of **jantha-ntharra* (with prenasalization of **y*); more comparative data are needed here. It appears that Yanyuwa may have no conveniently close relatives within Pama-Nyungan. It may occupy a position similar to that of Armenian with Indo-European, where one must make the jump from pIE **penkwe* to Armenian *hing* ‘five’ in one quantum leap.

The semantic connectedness of SEND and GIVE in Pama-Nyungan is recapitulated in NYA-W ngaka.rna ‘send’ and UMP ngangka-la ‘give, from spPN *ngaka- ‘send’ (Fitzgerald 1991:53-56)

J44	pPN	*jii	that, there	
	YUL	jii	that (near)	5
	KLY	SI	there	5
	IOR	DYI	here	4

The shift of *j- to s- in KLY is matched in sika- ‘stand’, from pPN *jika- (below).

Residue: WOI ju ‘there’ 3.

J45	pPN	*jika-	sit, dwell, be, stay	
	KAU	TIKKA-NDI	sit, dwell, live, be	4
	PNK	IKKA-TA	sit, dwell, live	4

pKR	*thika	return	3
WGK	thika-	return	3
KLY	sika-	stand	3
BAA	thika	return	3

As in J37, KAU <*T*> is taken to represent *th-*. The null reflex of _*j-_ before _*I_ in PNK is matched in this language in *IDNA* 'foot', from pPN _*jinang._ For KLY *s-* < _*j-_, see at J44.

Residue: DRD *tingkata* (sic) 'sit' 3 , with prenasalization of the _*k_. As for RETURN versus SIT – actual 'return' to a place has the POTENTIAL for 'sitting' or 'dwelling' at that place.

J46	spPN	*jikuy	shell	
	JIW	jiku.rra	bony-bream fish	2
	GUP	djiku.rru.na	turtle shell	4
		djiku.yu	crab	3
		djeku	soft egg	3
	DAT	djika.rr	wart	2
	PIT	jiku.la	egg	3
	UMP	thiku.wa	blue-mouth clam shell	4
	WMK	ek	shell	3
	YDN-G	jikay	sp. shell fish	4
	GID	jikay (N)	sore	1

In its reflection of _*j-_, WMK runs the full gamut from *th* – as in J2, to lenition to *y-* - as in J33, to outright loss of the above. It is clear that in WMK, as in other Pama-Nyungan languages, including NYA and PIN, the language is in the throes of what could be called Creeping Initial-Reduction, which would cover all three possibilities – retention, lenition and loss. Since a monosyllabic form such as WMK *ek* could have numerous possible sources, I assign a PR of it of 3 only. Lowering of the _*u_ to *a* is taken to have occurred in DAT, YDN-G, and GID. Supporting data for confirmation of this change are needed. In the history of this root, a particularly prolific variety of contentless enlargements has been added.

'Bony-bream fish' (cf JIW) may seem to an Indo-Europeanist to be a far cry from 'shell'. However, Susan Fitzgerald and I learned that it can be a fatal error to assume **a priori** that an etymological relationship between two such meanings is an impossibility in Pama-Nyungan. I assign to the JIW form a PR of 2, pending the further exacting study that is sorely needed. In this connection, note also GID *jikay* 'sore' (PR = 1), cf DAT *djikarr* 'wart', which is not swept under the carpet, but kept open for inspection by interested scholars. If the scab on a sore is what the GID form can refer to, then a semantic association with 'shell' would seem to be eminently feasible. Again, there is an ultre-simple way to test this possibility empirically: to bring together from as many Pama-Nyungan (and indeed non-Pama-Nyungan) languages as possible their terms for 'shell, bony-bream fish, crab, sore, scab', etc. and seek roots additional to _*jikuy_ which independently associate pairs or groups of these meanings,

J47	spPN	*jiilmpa-	rub, paint up, illuminate

PNK	IMBA.NNA	ashes	4
UMP	thiim'a.ji-la	rub, massage	5
YIM	jiimpa-l	put torch to, illuminate, shine up	5
MBA	pa.rr-r	paint	3
YY [yo']	thelmpe.r	noise of one [tree] rubbing on another	5

PNK shows the expected Nyungic outcome of **-lmp-*, namely *–mp-*. UMP *–m'-*, reflecting **-mp-*, is found also in *yam'a.thi-ji* 'forget' from pPN **yampa* 'ear. MBA loses *C_1 and V_1 (Dixon 1991), but I need further examples in order to confirm the development of an **-lmp-* cluster simply to *p*.

'Ashes' play an important role in traditional Aboriginal society as materials with which to ANOINT or RUB THE BODY. The rubbing into the body of white paint, for example, serves to ILLUMINATE the dancer. Most of the semantic associations implied in J47 are repeated in pPN **mapa-,* whose reflexes are glossed variously as 'rub, massage, ashes, illuminate and sun'.

Residue: WLP *jimany.pa* 'firesaw method' shows an unexpected *–m-* reflex of **-lmp-*, but does parallel the putative PIN reflex of **-lmp-* in J13. Semantically, this WLP form involves a RUBBING action, cf UMP 'rub'. PNK *TYIMBA (.LLA)* 'ashes' 3 is anomalous, since **j-* is normally lost before **i* in this language.

J48	spPN	*jilngku	east	
	NMA	jingka.yi	east	5
	YIN	jingka-	upstream; interior	5
	JGY	jilngku	east, down	5
	YDN	jilngku	down	5

The lowering of **u* at V_2 to *a* in Nyungic also occurs in J24. The NMA form has acquired an enlargement.

J49	pPN	*jima(n)	sp. berry	
	NYA-L	jima	black berry (conker berry)	4
	NUN	jima(n) jima(n)	tree or bush, having little white sweet fruits like berries	4
	BAA	thima.la	tree: gidgee	3

The loss of the final nasal in Nyungic and its incipient loss in NUN are illustrated here.

J50	pPN	*jimpa	young one	
	NYA-L	jimpa.rtu	baby, puppy	4
	PIN	jimpa.nya	children about 3 or 4 years old	4

This set illustrates the phenomenon of enlargements very clearly. In view of the close semantic agreement between the NYA-L and PIN forms, it seems likely that close semantic agreement between the NYA-L and PIN forms, it seems likely that neither *–rtu* nor *–nya* has any semantic content here (cf Wordick 1982 on contentless suffixes). It may be that NYA-L *jimpa.rtu* has influenced or been influenced by NYA *wupa.rtu* 'small', from pPN **kupa(n)*

J51	spPN	*jimpa	black		
	PNK	PIMBA	coal black	4	
	pKR	*jimpa	black	5	
	PIT	jimpa	black, blue	5	
	YDN	jimpa.ral	cyclone		3

Anticipatory assimilation, as in PNK *PIMBA,* is attested also in neighboring Wirangu, where *purlpa* 'dust' harkens back to pPN **kurlpa.*

The YDN form is evocative of the 'black' clouds of a cyclone. Compare spPN **maru(n)* 'black' which descends as **maru* with this sense in pWK, for example, but in YDN is reflected as *marun* 'cloud'. Contrariwise spPN **mUja(n)* 'cloud' descends in YDN as *mujan (ja)* 'black' (cf NYA *muju.ngu*, NGL *muju.ra* 'cloud', GUP *mutha.k* 'overcast, covering of cloud).

J52	pPN	*jinga-	say	
	PIN	-jinga-rnu	CAUSATIVE suffix	3
	PAY	jinga-nma	sing	4
	UMP	inga-la	say	4

The UMP form confirms that this language is in the early throes of initial-dropping (Alpher 1976).

'Sing' and 'say' are related in the diachrony of pPN **walngku.* The evolution of another CAUSATIVE suffix is illustrated under **jipa-* (see). Outside of Australia, it might be difficult to find a language in which 'say' or 'sing' has evolved into a CAUSATIVE verbal suffix. Within Australia, it is perfectly feasible! Singing in order to make rain fall, or to make rain cease, is a quintessentially Aboriginal thing to do.

Residue: JGY *yinga-l* 'send out' 2; WOI *yinga-* 'sing' 3. NGI *ngiya-* 'say' 2 may well be related metathetically to the other forms.

J53	pPN	*jinka(l)	[leg part]	
	WLM-J	jinka.rri	thigh, leg	4
	GUP	djin=ga.r.yu-n	stand	3
	MUR	thinkal	knee	5
	BAA	thinki	knee	5

The WLM-J and GUP forms contain enlargements. BAA, in which all words end in a vowel, has lost the **-l* and assimilated V_2 to V_1. Pama-Nyungan terms for body parts often evolve into verbs of stance or motion. Compare pP **pungku-* 'knee' with spPN **pungka-* 'fall', for example.

It is possible that *j*inkal* is ultimately related to pPN **jinang* ‘foot’ through incretion involving *–k-*. The discrepancy between final **l* on the one hand and **ng* on the other would then call for explanation.

J54	spPN	*jipa-	awaken, cause	
	pKA	*jipa-L	drive	5
	pKA	*jipa-L	CAUSATIVE suffix	4
	NMA	jipa-lku	wake him up, start it (car), drive (cattle)	5
	KUN	efa	wake up, rise up	4

For the development **-p-* > *f* in KUN, compare pPN **jipa* ‘liver’, which descends as if in this language. Initial-Dropping has run its full course in KUN (Sommer 1976).

Residue: UMP *impa-la* ‘awaken, flush (game)’ 3; WMK *imp-an* ‘start or provoke a fight’ 2; B-GU *thiwa-* ‘wake up, shift (camp)’ 4 (numerous words in B-GU with intervocalic *p* from **p*). Sporadic prenasalization though present throughout Pama-Nyungan, is particularly common in Pamic. A comparable situation exists in Austronesian (Blust 1990).

The evolution of a CAUSATIVE suffix is also illustrated in J52. Note that such verbs as ‘drive’ and ‘awaken’ can be used in CAUSATIVE constructions in English also: ‘drive a person crazy’; ‘awaken curiosity in the students’. In estimating degrees of plausibility in the above (on a scale if 0-5), I therefore deducted only one point for the development *awaken > CAUSATIVE (and one for **i* > *e* in Kun; one for **p* > *w* in BGU; one each for initial loss and prenasalization in UMP and WMK; and one for what I consider to be slight semantic divergence in WMK).

J55	pPN	*jipi	complete, finished	
	NYA-W	jipi.(rla)	alright, finished, ready	5
	NYA-L	jipi.(rti)	that’s the finish, OK	5
	NYA-S	jipi-rna	finish, end	4
	WLM	jipi.rra	complete, [in its entirety]	4

Several of the forms contain enlargements. Those in NYA-W and NYA-L occur optionally, and may convey a degree of EMPHASIS. The NYA-S form illustrates the evolution of a verb from a particle.

J56	spPN	*jiipi(n)	alive	
	MNG-N	jipi	man, male (“living being”)	3
	WLP	jipi	survival, long life, longevity	4
	PNK	IpI	alive	5
	PKR	*thipi	alive	5
	UMP	yii’i.la.ma	alive	3
	JGY	jipin	navel, umbilical (“lifeline”)	3
	YDN	jipay	eagerly in love	1

For further evidence of a connection between ;man' and 'alive', see _*jUra(n)_. Although the innovations in the UMP form have precedents, it can be accorded a plausibility rating of 3 only. This is because it has as yet no known cognates elsewhere in Pamic, and its glottal stop could reflect any one of ancestral _*p, *t, *rr,_ or _*r._

The phonology and the semantics of the YDN form are at variance with the other languages, which is why it is given a plausibility rating of 1 (i.e, 20%). (Nineteen out of twenty comparativists would probably omit it altogether from this set, but I prefer to keep track of certain conceivable cognates by including them in such displays as the above. Some native speakers or linguist more knowledgable and insightful than I may eventually come up with ironclad evidence to justify the inclusion of YDN jipay in the above).

J57	pPN	*jiipi(n, ny)	bird	
	WLP	jipi.lya.ku	water bird – especially ducks	3
	JIW	jipi.rn	brown quail	3
		jipi.rri	swallow (sp. bird)	3
	GUP	djip,marama nhäma	bird's eye view	2
	UMP	jiipi.mu	painted quail	3
	BIR	dibi.la (sic)	bird	3
	GUM	jiipin	bird	5
	YUW	dibiny (sic)	bird	3
	M-GU	dhibi.ja.ra	sp. duck	3
	NGI	thipi	bird	5

This set provides an excellent example of a profusion of different contentless enlargements (O'Grady 1966, Wordick 1982) in WLP, JIW, UMP, BIR, and M-GU. GUP _nhä-ma_ is 'see'. Holmer's _<d>_ in BIR and YUW probably stands for _/th-/_ (many of the speakers he worked with were very old people lacking teeth).

Semantically, several of the forms show narrowing. The meaning 'quail' appears in the widely separated JIW and UMP; likewise with 'duck' in WLP and M-GU.

Residue: GOR _jiping_ N 'fly' 1.

J58	pPN	*jipulany	bird	
	PAY	jipiliny.ku.ra	sp. bird, swallow	4
	B-GU	thipiliny	bird	5
	MRG	dibuliny (sic)	bird	4
	WRJ	thipilaany	bird	5

This set is remarkable in that it provides support for the claim that, albeit rarely, pPN was host to trisyllablic roots. Even here, though, it seems overwhelmingly probable that sets J57 and J58 are ultimately related. The _*-lany_ portion in the latter was evidently an enlargement added anciently – conceivable circa 4,000 years ago. Much more recently, PAY has added two further enlargements. It seems most unlikely that these are correlated in any sense with the narrowing in meaning to 'swallow'.

J59	pPN	*jipu(n)	spark	
	YUL	jipi.ly.jipi.ly	spark	4

PIN	jipu.rtu	eye	2
KAU	TIPO	spark	4
NYW	jipin	flying spark	5
BAA	thipi	spark	5

V_2 has assimilated to V_1 in NYW and BAA, and to V_1, and/or the following laminopalatal enlargement in YUL (followed by reduplication). KAU and BAA, in which final consonants never occur, have dropped the *n.

A semantic development *SPARK > EYE is conceivable. Electronic technology now makes eminently possible a comparison of terms for 'spark' and 'eye' in a very large number of Pama-Nyungan – and, indeed, Australian – languages. Could other etyma provide evidence for the semantic connections in question? Such objective evidence should provide the criteria by which each putative cognate set falls by the wayside or is vindicated.

Residue: NYA prenasalized form *jimpu* 'egg' ("the spark of life") 1. This may belong in J57, rather.

J60	spPN	*jIra-	sneeze	
	PM	*jira-ru	sneeze	
	KLY	thiya-w	sneeze	

J61	spPN	*jirnta	spark	
	NYA	jirnta	spark	5
	YIN	jirnta	hot coal, ember	4
	GYA	jinti	fish scale; dish	2
	MUR	thinti	spark	5

GYA and MUR show perseverative vocalic assimilation.

At first, I rejected the idea of including GYA *jinti* in the cognate set at all, but then in a flash it came to Alix, my wife, that certain fish seen underwater glint or sparkle in the light of the sun or moon. 'Dish' may also belong in this constellation, since bailer shells were used by the Gugu-Yalanji in traditional times as water containers (cf GYA *warkal*), and such shells 'glint' on the inside.

An ancient relationship probably exists between pPN *jirnta and pPN *jiiru, cited in O'Grady (1990g).

Comparing *jirnta with pDN *jinta 'other' – and in consideration of Fitzgerald's (1995) arguments – we cannot but conclude that retroflexion was indeed distinctive in pPN.

Residue: WLP *yirnti* 'spark' 4. This language regularly reflects *j- as *j*. It is exceptionally resistant to the encroachment of Initial-Softening.

J62	pPN	*jIrran$_1$	white	
	MRN	jirri.ny	sandhill ("white")	3
	YDN	jirrin	seagull ("white")	3
	NGI	thirraan	rise, mound, sandhill	2
	IOR	DYIRRA	white	3

Regarding the development *white > (white) sandhill, consider pPN **pira* 'moon', which descends in WIR as the doublet *pira* 'moon' and *piri.ny* 'white sandhill'. Could the *–ny* here reflect the same tradition as the *–ny* in neighboring Mirniny's jirri.ny, above? If so, we may be looking at an archaic Bantu-like nominal class marker. In such a case, we would have to revise our categorization of certain 'endings' as (semantically contentless) enlargements / annexes / accretions.

In the event that in the real world NGI *thirraan* is, in fact, a 'white' sandhill, it can be assigned a PR of 3.

J63	pPN	*jirran$_2$	frightened	
	NYA-W	jiti-rni	wake…flush (bird) from cover	4
	WLP	jiti-rnu	tease, badger	3
	PAN	jirra.kayi.ku	jump	3
	JIW	jirri.l	afraid; fear	4
	GUP	dhirr'.yu-n	Vtr, wake up, disturb	4
		dhirr'.thirr.yu-n	frighten (an animal)	4
	pCK	*thirrhi-	fight	3
	DIY	thirrhi	cheekiness, ferocity	3
	GYA	jirra.kanga-l	tease … start a fire	3
	IOR	DJIRUN	to fear; coward	3
	BAA	thirri-mila-	tease one another	3
	GIP	JERRA	fear	3
	WOI	jirra.puny	ashamed, shy	3

The shifting of intervocalic *rr* to *t* in NYA is also seen in **wirri* and **yUrrany*. That in WLP has yet to be confirmed. The assimilation of V$_2$ to V$_1$ is in evidence in several of the languages. The loss of V$_2$ in GUP is well documented in these pages.

The BAA suffix *–mila-* forms reciprocal stems from transitive verbs (Hercus 1982:186). If one assumes an original meaningof 'frightened', then 'flush (bird), tease, badger' can be seen semantically as CAUSATIVES of the same. PAN 'jump' is evidently the result of BEING FRIGHTENED.

MIR *SIRIP* 'SHAME' may be a loan from a Pama-Nyungan source.

J64	spPN	*jirta	blossom; plume of bird	
	WLP	jirta-warnu	plume, topknot, crest	4
	PNK	irta	bird	5
	WIR	jirta	bird	5
	YGD	jirta.rtu	crested bellbird	4
	YDN	jita	blossom	3

That the often multihued crests of Australian birds should be likened to blossoms is not surprising. In Yidiny, we have here yet another example of the loss of a distinctive retroflex series of consonants.

J65	spPN	*juju	head	
	NYA	juju	head	4
	YIM	thuju.rr	back of head, nape	4

J66	pPN	*juka$_1$	straight, correct, right	
	pNY	*juku.rr	straight, correct, proper	5
	WLP	juku.rr.pa	dreaming, totem; dream	5
		juka.rurru	correct, straight, right	5
		juka-karri-ja	stand sticking up	4
	NUG	juka.rti	yes. all right	4
	PAN	thuku.rr.pa	straight, correct, proper	5
	GUP	dhuka.rr	path, road, way	3
	IOR	DUGA. RANG (sic)	straight	3

V_2 has assimilated to V_1 in pNY **juku.rr*. IOR <*d*> was, in all probability, */th/*. Several accretions are in evidence. Since WLP and PAN agree semantically with genetically far-off IOR, the original meaning is taken to have been 'straight'. The GUP meaning may well have evolved in ways similar to English 'straight' as in 'the horses are coming down the straight'.

J67	pPN	*juka$_2$	smoke	
	NAN	yuku.r(t)u	smoke	4
	PAN	juku.rn.pa	smoke	4
	pKM	juku.rtu	smoke	4
	ARR	kwe.rte	smoke	3
	GUP	dhoku.	paperbark ("potential smoke"?)	3
	WRI	duga (sic)	smoke, fog, tobacco	4
	PRT-R	DTHOGA	smoke	4

It is quite probable that this set is related to J66, since Ken Hale (personal communication) has pointed out that the Walpiri people view 'smoke' as a vertically standing phenomenon.

Residue: NYA-L *yuku.rn* 'smoke' 3 and MNG-N *yuku.n* (sic) 'smoke' 3, versus the PAN form, exhibit sporadic initial-Softening, which has occurred infrequently in these two languages.

J68	pPN	*jUka-	turn, copulate	
	UMP	thuka-	copulate	4
	JGY	jika-ḷ Vtr	turn	4
	GID	juuka-	copulate	4
	BAA	thuuka- Vintr	turn	3

The presumed development of **u* > *i* in JGY, above, is in need of confirmation. The length of pPN's V_1 cannot be determined: UMP and GID, which are both taken to be diagnostic for the length of this vowel in pPN, disagree in this instance. At this stage of my studies, I have not yet made a serious attempt to work out the diachronic status of vowel length in BAA.

PIN *ngarri-ngu* 'lie, sleep; copulate' illuminates the semantics of the above, as does the development of pIE **swei-*$_2$ 'bend, turn' into Archaic English *swi.ve* ('have sexual intercourse with').

Residue: WLM *yuka-rnu* 'lie down' 3.

J69	pPN	*juukar	ground, earth	
	NYA	jungka	ground, earth	5
		jungka.ri	grave, cemetary	4
	WLP	jungka.ra	soft ground	4
	NYU-N	thungka	ear	4
	NYU-E	thwangk	ear	4
	YIN	thungka	soil, dirt, sand	5
	PAY	thungka.ra	earth, ground	5
	pKR	*thungka	rotten	3
	YIM	thuukaar	sand	4
	BAA-B	thungka.thungka	stinking ('dirty')	3

The metathesis rule implied in NYU-E *thwangk* is confirmed in NYU-E *kwan* 'feces', from proto-Nyungar **kuna*, from pPN **kunang* (and in numerous other examples). The prenasalization of **--k-*, shared by all of the languages except YIM, is a small pointer towards the subgrouping of these languages. Other evidence, however, suggests that BAA is not genetically close to the remaining languages represented in this set, and its term 'stinking' may be a loan from some northwestern source. These data do hint at a Nyungo-Karnic node in the Pama-Nyungan family tree.

The semantic development *GROUND > EAR (and EAR .> GROUND)) in Nyungar seems wildly improbable by Indo-European standards, but is independently recapitulated several times over in Pama-Nyungan (O'Grady 1979, O'Grady and Fitzgerald, 1993). The development GROUND > STINKING in BAA-B is confirmed in NGL *nganyja* 'sand', GYA *nganjay* 'no good, wilted; bad smell' (<pPN- **ngAnyjay*. See Fitzgerald 1991:77)

J70	spPN	*juku	tree	
	NYA-W	juku	base of tree; pubic hair	4
	KLY	DUKU.N	tree with hard wood	3
	GYA	juku	tree	4

Residue: Initial-Softened reflex in pP **yuku* 'tree, stick' (Hale 1976) 4 (> UMP , YIM *yuku*, WMK *yuk*, YY *yo'*.) Aberrant final vocalism (sporadic fronting) appears in YDN *juki* 'tree, wood, stick' 3.

J71	pPN	*jUkung	small (child)	
	NYA-W	juku.rtu	boy (circa 6-12 years)	4
	WLM	juku	offspring	4
	PIN	juku.juku	small	4
		juku-rnu	make small	4

KAU	TUKKU. TYA	small … child	4
NMA	thuku	baby boy	4
NGO-S	thukung	younger brother	4

The late Pama-Nyungan **-ng* (Capell 1956, Dixon 1980) is lost in Nyungic. KAU <*T*> is taken to have represented /*th*/.

All of the forms differ mildly on the semantic level – hence the universal PR of 4.

J72a		spPN	*julya	bent	
		NYU-N	DJUL-YY.N	hip-joint	4
	Res	NGL	julya	buried in the ground	1
		WMK	thuuti.y	snake	4
		YDN, Ja	juja	back, backbone	3

Moore's (1884) transcription of the NYU-N (WJK) form probably represents /*julya.ny*/. Dench (1994) does not list this form. The correspondence between intervocalic Nyungic *–ly-* and Pamic *-th-* / *-j-* is regular (Fitzgerald 1993). Vowel length in WMK is not reliably diagnostic for pPN vowel length (Fitzgerald 1994). The NYU-N and WMK forms have undergone enlargement.

If the ancestral meaning is taken to be '*bent', then 'hip-joint' and 'snake' appear as fairly plausible semantic outcomes. (Note English *hi.p* from pIE **keu-b-* 'bent'). The YDN *Ja* form is semantically not a far cry from 'hip-joint'. NGL 'buried in the ground' is by far the most problematic, but seems worth including here, since its phonology agrees perfectly with the other forms. (There may be some semantic link here via 'snake' [hibernating and curled up!] not quite lost in the mists of time). Let the PR be 1 at least! Scholars succeeding me may find the missing link that would fully validate inclusion of this NGL form in the above set.

It is evident from the above that my philosophy in assembling putative Pama-Nyungan cognate sets allows me not only to include ironclad form like NYA *jina* 'foot', from pPN *jinang* 'foot', but also, on occasion, quite problematic roots and stems which are conceivably also cognate. Further study will probably either vitiate or confirm the likes of these.

J72b		spPN	*juulyu	breast, milk	
		YGD	julyu	breast, milk	5
		UMP	juuju	breast, milk	5
		WMK	thuut (sic)	breast, milk	4

J73		pPN	*jUnam	leech	
		WLM	junu.ru	leech	5
		WIR	junu	snake	4
		YDN	junam	leech	5
	Res	WAA	junam	cod	1
		BAA	thuun.p.a	worm	4
			thun.m.a.rra	worm	3

Perseverative assimilation is in evidence in the vocalism of WLM and WIR (unless, in WLM's case, it is a question of assimilation of the **a* to the *u* of the *–ru* enlargement.) BAA shows a doublet, both members of which have undergone incretion, with an original **-p-* assimilating in the second member to the preceding nasal. In addition , pre-BAA **thunma* has acquired an enlargement *–rra.* See O'Grady (1966).

The semantics of this set is recapitulated in part in pPN **jurrung* (O'Grady 1990c), which attests to the development *SNAKE > LEECH. For SNAKE versus WORM, note the semantic change from Old English *wyr.m* 'worm, serpent' to Modern English *wor.m* (from pIE **wer-₃* 'to turn, bend').

Residue: IOR *DJUNI* 'scorpion' 3 shows, in its final vowel, the result of sporadic vowel fronting. PM **thurnu* 'snake' 3 contains the wrong apical.

J74		pPN	*jUnga$_1$	straight; extended vertically	
		WLM-J	junga	straight; correct…skilled	5
		WLP	junga.rni	correct; straight; right hand	5
		KLY	ZUNGA	tree	3
	Res	GID	junga.rr	straw-necked Ibis	1
		BAA	thunga-	straighten	4

To these forms I append Lardil (LRD) thungal 'tree, stick; thing' (though LRD belongs in Tangkan, another language family). This is done for those scholars interested in uncovering any pointers towards Proto-Australian.

A connection between STRAIGHT (or TRUE) and TREE is quite plausible. Note English **true** and **tree**, from variant forms of pIE **deru*. The 'Straw-necked Ibis' may have physical qualities leading it to be thought of as 'straight' (it is therefore assigned a minimal PR of 1). A study of names for this bird in a large number of Australian languags might well resolve this issue.

J75	pPN	*junga$_2$	smoke	
	NYA-W	junga.rn	smoke	4
	THN	duung (sic)	smoke	3
	BND	thong-a	smoke	4
	YOD	thonga	smoke	4

The NYA-W form contains an enlargement. The *<d>* in THN probably represents */th-/*, but this cannot be assumed automatically.

Just as J66 and J67 may be related – 'smoke' being viewed as 'extending straight up', so also are J74 and J75 quite possibly connected semantically. Indeed, all four of these sets may ultimately stem from one and the same etymon, likely in a pre-Pama-Nyungan epoch. It could be a case of intervocalic **k* weakening to **ng,* for reasons unknown. At the present time, it seems preferable to keep the four sets separate.

J76	spPN	*jungku(n)	hill, pinnacle	
	PIN	jungku.pu.nya	Tarn of Auber (a hill west of Papunya)	5

	GUP	djonggu	hat y	2
	YDN	jungkun	pinnacle, small hill	5

The PIN form has acquired an enlargement, *-pu,* to which has subsequently been added the *–nya* which commonly marks proper nouns. The GUP form poses a problem in that the second *–g-* should have been deleted (by regular sound change).

The PIN and YDN forms show excellent semantic agreement . The GUP form, however, is quite dubious semantically, unless a 'hat' is seen as comparable to a 'small pinnacle'. Thus for two reasons, GUP *djonggu* is assigned a PR score of 2.

J77	pPN	*junkan	back, rear, tail	
	NGL	junku	back	3
	GUP	dhun=gu.rr.k	back of neck	3
	GYA	junkan	back of heel and ankle	3
	GOR	jun	tail, penis	5
	MAN	jun	cunnus (vulva)	3
	GID	junka.rr	penis	3
		jun	tail (considered rude)	5
	pCNSW	*thun	penis, tail	5
	KAM	dun (sic)	penis	4
	WRJ	thun	penis, tail	5
	IOR	DUN (sic)	tail	4

In NGL and GUP, assimilation of V_2 to V_1 is in evidence. The GUP form has acquired two enlargements, *-rr* and a reflex of pPN **-kan.* The first GID form has also gained an –*rr*. Loss of the entire second syllable, as in the last six languages in the display, is matched in other cognate sets. Consider PIN *yarrka-rnu* 'copy, taste' and YAN *lharrku.wanja-rra* 'copying, mimicking, imitating, pretending, mocking' as against GID *yaarr* 'imitation, copy' from pPN **lhaarrku..*

A connection between BACK and TAIL is seen in WMK *mut* 'tail' from pP **mutu* 'back' (Hale). TAIL and PENIS ate both *ngirnti* in WLP. Note, further, NYA-W *pilyi* 'penis'versus PIN *pilyi* 'vagina' (and GYA *piji* 'tail', from spPN **piIlyi* 'penis, tail'.

J78	spPN	*junkurr	strength	
	PIN	junkurr-pa	thickly standing spinifex or bush ("strong growth")	4
	GYA	junkurr	strength	4

This set confirms other evidence that *rr is to be reconstructed for word-final position.

J79	spPN	*jUnta(l)	poisonous	
	NYA	junta.ngu	Death Adder (sp. snake)	5
	GUR	jurnta.ka.l	legendary giant Death Adder (sometimes seen in form of a falling star) who introduced circumcision	3
	NGL	*junta.nga	Death Adder	[5]
	GYA	junta	wild …poisonous…	3

NUN	juntal	woman	

Borrowing is suspected between NYA and NGL, which are geographically adjacent. The forms in these two languages each contains an enlargement. The GUR and GYA forms share a true cognate at least with one of NYA and NGL.

NUN *juntal* is assigned a PR of 1 (signifying that I consider it to be not totally implausible as a cognate) because menstrual flow may have been regarded as poisonous. This hypothesis is supported by the evidence of PIN *kungka* 'female, YDN *kungka.ka* 'female dance style' and UMP *kuungka* 'poison, medicine' which would reconstruct to spPN *kuungka.

J80	pPN	*juntu(l)	straight; right	
	NGL	juntu	straight	4
	GUP	dhunu.pa	righthand side, straight	4
		djunu.nggu	immed (sic), straight away	3
	GYA	juntul	sp. tree	3
	BAA	thuntu.rru	now, immediately	3

J81	spPN	*junyjuN	centipede

The loss of the stop following the homorganic nasal in GUP is regular. The GUP and BAA forms contain enlargements.

A connection between STRAIGHT and TREE is also indicated in J74. The semantic development *STRAIGHT > IMMEDIATELY in BAA has a parallel in British English 'straight away'.

Residue: WAK junim 'straight' 2. More study is needed before this form can be securely put forward as a further cognate.

WLM-N	junyju.rl	leech	4
pCK	*thilthi.rri	centipede	4
NGM	thinthi.rri	centipede	4
pP	*junyjuN	centipede	5
UMP	junyji	centipede	4
WMK	thunch	centipede	5
THY	nyjun	scorpion	5
YDN	jinjin.kuwa	sp. snake	3

The WLM-N, pCK, YDN, and NGM forms contain enlargements. Proto-Pama-Nyungan final *ny merged with *-n in pP – hence my reconstruction of *-N in both pPN and pP. The loss of V_2 in WMK and of C_1V_1 in THY is regular. The fronting to *i* of both *u's in YDN and pCK is clearly due to assimilation to the laminopalatal environment. The development whereby a preconsonantal nasal became a lateral in Karnic is seen also in spPN *mAnka > PNK *manka* 'dots. tattoo scars', but DIY *malka* 'mark, stripe, spot'. In the wider Pama-Nyungan context, the pCK reconstruction must necessarily be revised to *thinthirri.

'Leech', 'snake' and 'scorpion' are linked semantically in J73. A further connexion with 'centipede' is entirely plausible. See pPN **jurrung* in O'Grady (1990d).

J82	spPN	*jupa	lower back	
	NYA-W	jupi.rri(-ngi)	[carry] on the hip	4
	NYA-L	jupi.rri	[carry] under the arm	4
	PIN	jupu-rnu	carry on the back	4
	NYU-N	jupu	kidney	3
	YDN	jupa	on the shoulder	4

The forces of assimilation have attacked V_2 from the right in NYA, from the left in NYU-N, and perhaps from both directions in PIN. An enlargement has appeared in NYA (see O'Grady 1966). PIN has formed a denominal verb – a very common development in this language.

An ancestral meaning of 'lower back' is suggested. The development from this to 'kidney' as well as to 'hip', 'back' and (ultimately) 'shoulder'seems reasonably plausible.

J83	spPN	*jUpi	squeeze, pinch	
	GYA	jupi-l	pinch	4
	YDN	jupi-N	touch, play with, rub	3

Residue: NYA-W *jumpi-rni* 'crush, squeeze 5; NYA-S *jumpi-rna* 'grab circumcision candidate' 3; PIN *nyupi-rnu* 'press, squeeze (boil) 4; NMA *jumpi-lku* 'squeeze, constrict (python) 5; *jimpi-lku* 'squeeze (blister, pimple) 5; YIN *jumpi-* 'squeeze' 5; JGY *jumpa-y* 'copulate 3.

Sporadic nasalization has affected every one of these forms – initial nasal gradation in PIN and prenasalization of **p* in the rest. Assimilation of V_1 in the second NMA form to its [*-bk*] environment has resulted in the formation of a doublet. The JGY form, with its *–a-*, may have undergone conjugation-conditioned reanalysis.

Semantically, the greatest gulf to be bridged here is that between 'squeeze' and 'copulate'. Parallel evidence is, in fact, to be found in three further verb roots: (1) pPN **kuuraN* 'squashing' – which descends in NYA-W and WEM with this meaning intact, but in WLP as *kura* 'sexual intercourse'; (2) **ngiima* 'squeeze', which appears in PNK and GID with this meaning, but in PAY as *nyiima-nmayi* 'copulate with'; and (3) **yika-* 'squeeze', appearing in pWK as **yika* 'squeeze', in NYU-N as *IGA-N* 'alarm, disturb, drive', in ARB as *iki-* 'drive' (and possibly in PIN as prenasalized *yingka-ngu* 'ask'), but in NYA-W as *yika-rna* 'copulating with'. (For the semantics here, consider English 'drive a hard bargain' or 'squeeze him for cash'.

J84	pPN	*jUra(n)	alive	
	MDB-E	jura	penis	3
	NUG	thura	man, Aboriginal person	4
	GYA	juran	alive	4

The semantics of this set is supported by J56 (*ALIVE > MAN, MALE). Note further NYA-W *nangka* 'erect (penis)' versus WIR *nhangka* 'man, Aboriginal person' and WMK *nek* 'name', from pPN **nakV.*

Residue: PIN *juri* 'penis' 2, with unexpected *-i*, has quite possibly been taboo-deformed. IOR *YURA* 'person' 3 poses a problem in that this language does not regularly weaken initial **j.*

J85	spPN	*jUri	sharp	
	WLM	jiri	sharp, pointed	5
	PAY	juri.rri	sharp	5
		juri-nma	sharpen	5
		jiri-parri	echidna, 'porcupine'	5
	JIW	juri.rri	...occiput, sharp	5
	JGY	juri	sharp (blade)	5
	YDN	juri	sharp	5

The **u* at V_1 has assimilated to the *[-bk]* elements to left and right in WLM – this much this language shares with NYA, WLP and PIN, below. A *–rri* enlargement is shared by the PAY and JIW terms.

Residue: NYA-W, WLP, PIN *yiri* 'sharp (point)' 4, 4, 4; pM **yiri* 'sharp' 4 (loan from Western Desert?). The data point towards a shared innovation in NYA, WLP and PIN.

This set contains an excellent sheaf of data for the student of Comparative Method linguistics: the phonologically conservative forms survive only in the languages of the extreme west and extreme northeast of the continent, and two innovations have affected the intervening languages. The student has no convoluted semantic developments barring her or him from a principled and satisfactory completion of the exercise.

J86	spPN	jUri$_2$	sweet to the taste	
	NYA-W	juri	sweetness, sweet substance	[5]
	NGL	juri	taste, flavour	[5]
	pCK	*thuri.nji	marrow	3

The pCK reconstruction contains an enlargement. Borrowing between NYA-W and NGL is a distinct possibility – hence the square brackets. (At least pCK shares a true cognate with one or the other of the two northwestern languages).

A connection between SWEETNESS and MARROW seems moderately plausible, and a PR of 3 is indicated.

J87	pPN	*jUrl	drip	
	NYA-W	juL.juL ~ jiL.jiL	sound made by dripping water	4
	WLM	jirl.ka-rnu	drip. leak	5
	PIN	jirl.puta-rnu	drip	5
	GUP	djuḻ.'.-yu-n	drip	4

	KLY	SUL.I	drip, drop	4
	WEM	jur.pa	rain, drip	4

Among the three Nyungic languages, only NYA-W preserves the old _*u_ in one of its alternants. The _L_ indicates my uncertainty, half a century ago when I was partly retroflex-deaf, as to whether I was hearing _l_ or _rl_ in NYA-W. At all events, WLM, PIN and GUP point strongly towards _*rl_ as having been the original sound. KLY confirms that V$_1$ was _*u_. KLY lacks a retroflex series, and it mirrors _*rl_ as _/l/_. The root appears in reduplicated form in NYA-W and with different verb formatives in WLM, PIN and GUP. Semantic agreement is excellent.

Residue: PNK _IL.PI_ 'drop' 4; DIY _jil.pi_ 'knob, lump, drop' 3. Possibly the DIY form is a mistranscription for _*jirlp_i, if this so, it merits a PR one point higher. The identical _–pi_ enlargements – and other evidence – impels me towards the conclusion that PNK and DIY form part of a South Australian Sprachbund.

J88	spPN	*jUrla$_1$	eye	
	NYA-W	jurla	blind in one eye	4
	NYA-S,L	jurla	blind	4
	pNG	*thurla	eye	5
	KAY	erlwe	eye	5

J89	spPN	*jUrla$_2$	tree	
	PAY	jurla	tree	4
	JIW	jurla	butt of tree	4
	BIR	dula (sic)	stick … log, tree	3

Residue: JGY _julpin_ 'tree (generic)', 'log' 2 posibly underwent incretion and sporadic vowel fronting. Or, more likely, it is a cognate of PAY _thurlpi_ 'mangrove', from spPN _*jUrlpi(n)_. I now discard my earlier theory that PAY _thurlpi_ is cognate with pP _*julpi_ 'stomach, belly' ("convoluted").

J90	pPN	*jurlka	hill, heap	
	WLM	jurlka.rn	heap of earth dug from hole by animal or man	4
	GUP	djulka	earth, ground	3
	UMP	ilka	hill	4
	WMK	yoyk	hill, mountain	4
	YDN	julka	bumpy	4
	GUM	julkaa	island	4

Alone among the languages represented, WLM presents a form containing an enlargement. The shift of _*j-_ to _y-_ in WMK – and further to phonological zero in UMP – has affected a substantial portion of the lexicons of these two languages. The loss of _*j-_ in UMP was preceded by the fronting of _*u_. The innovation whereby medial _*l, *rr_ descend as _y_ in WMK is seen further in _*kULpal_ > WMK _koyp_ 'Pied Heron' (versus

GYA *kulpal* 'brolga') and in pPN **warram* 'bad' > WMK *way* 'bad' (versus NYA-W *warra* 'rotten' and GID *warram* 'left-hand side').

Some linguists may find the semantic variation in the proposed reflexes implausibly excessive. As developments from *HILL, HEAP, 'earth' strains credulity the most, yet I feel that a PR of at least 3 is indicated.

Residue: NMA *yurlka* 'head' 3. I find parallel semantic developments in *GID parray* 'end, top of tree', UMP *pa'an* and LIN *aran* 'head' , from pEPN *para(N,y).

J91	spPN	*jUrna	[a weapon]33	
	PIN	jurna	nulla nulla [club]	[5]
	YIN	jurna	club	[5]
	GUP	dhon̲a	yam stick	4
	KLY	TUNA(A)	large barbed javelin	3

A higher PR than 3 can be invested in the KLY form if its modern, accurate transcription should turn out to be **thuna* (the members of the Cambridge Anthropological Expedition to Torres Straits early in this century were unaware of the contrast between *th* and *t,* or between *dh* and *d*, in this language.).

[Editor's note: 'this century' here means the 20th century. HF]

This root may be widely diffused in Western Australia – a possibility which does not affect the fact of cognation between the form in whichever was the donor language in the West and that in GUP and, probably, KLY.

J92	spPN	*Ju(r)ni-	laugh? cry?	
	YGD	thurni-nyi	laugh	5
	pNG	*thurni-ku	laugh	5
	pM	*thurni-ngku	laugh	5
	ARB	thutni-	cry	3
	WGK	thuni-	cry	3

All of the above languages have merged original initial **r*, **l* and **t* with **j* – hence the **J-*. Apicals occasionally fluctuate between alveolar and retroflex articulation – hence the inclusion of the ARB and WGK forms in the above. (Ken Hale pointed out several decades ago that Warlpiri dialects occasionally show the same fluctuation).

Antonymic Semantic Shift has occurred between 'laugh' and 'cry' – in which direction is not clear. If a fairly distant related Pama-Nyungan language such as KLY contained a convincing cognate meaning 'laugh', say, then the semantic agreement with far-off Western Australia would virtually ensure that the original meaning was 'laugh'. But this is not the case. Semantic interchange between 'laugh' and 'cry' has also occurred in **ngaaji-* and **ngAkV-*$_2$*,* both discussed in Fitzgerald (1991).

J93	pNYY	*jurnta	white	
	WLP	jurntu	limestone country	4
	NYU-N	DJUNDA.L	white	3
	NYU-SE	thurnt	white clay, white	4
	JIW	jirnta	white	4

The WLP form shows assimilation of _*a_ to _*u_. In JIW, the _*u_ has assimilated to the _[-bk]_ feature specification of the _*j_. NYU-SE evinces the usual loss of V_2 in that dialect. Dench (1994) gives the modern transcription of the NYU-N form as _junta.ly / thunta.ly_ (when converted to our orthography). This departs from the consistent retroflex pattern of the other forms. In this respect, compare J92.

Set J93 cries out for cognate(s) in eastern Australia, in order that it can be shown to be of Pama-Nyungan age. I refuse to accept that a given root belongs to "regional" (e.g., pNY) vocabulary in Pama-Nyungan unless all other pNY Pama-Nyungan languages have first been microscopically examined for conceivable, possible, probable, virtually certain, or certain cognates. Since I lack the resources to do this, it remains for others to accomplish this eminently worthwhile task. Generally speaking, I am content to desist from further search in the present work once a given reconstruction has been established as being of PN age and is supported by a wide scatter of putative cognates in half a dozen languages or so.

In those cases where only two languages are known to contain cognates, I definitely include these in this work, since subsequent massive computerized searches by others will in most cases substantially expand the number of languages with cognates. **Contra** Dixon (p.c.), I persist in following this procedure rather than crush, scuttle, throttle or choke off promising embryonic cognate sets.

J94	spPN	*jUrnta-	squeeze	
	YIN	thurnta- Vtr	roll [e.g., in black ash]	4
	PAN	thurnta-lku	roll (damper)	3
	pK	*thurnta-l	rub, paint	4
	JIW	thurnta-ru	dig	1
	WGK	thurnta-	squeeze	3

This set provides an example par excellence of the monumentally conservative phonologies of most Pama-Nyungan languages. At the same time, the semantic variation from language to language can be sweeping, even daunting. To the above can be added YAN _jurntu.ma-ntharra_ 'bumping… as of two canoes…when moored': 3. It can be argued that 'rolling, rubbing' and 'bumping' all involve 'squeezing' and the semantics of _*jUrnta-_ is supported by that of _*tuura-_ in PIN and GUP (O"Grady 1990a). 'Dig' is the odd man out, yet it seems worthwhile to bring the JIW form to the attention of other linguists; a PR of 1 is indicated.

J95	spPN	*jurntu	stomach	
	PIN	jurntu.rra	vomit	3
	NGL	jurntu	pregnant	4
	pKR	*thuntu	(sic) stomach	3
	PIT	jurntu	belly (external)	5
	WGK	thurntu	belly	5

The PIN form contains an enlargement. For the variance between _*n_ and _rn,_ see at J92.

Reflexes of pPN **maartu-* also poinr to a connexion between 'vomit' and 'pregnant'. The relatedness of pregnant and stomach is demonstrated copiously in Pama-Nyungan languages.

J96	spPN	*jUrra	sp. bird	
	JIW	jurra.pi	White-plumed Honeyeater	4
	GYA	jurri,yan	Satin Bower Bird	3

Much more study of semantic change among bird names in Pama-Nyungan is called for before we can confidently vouch for the semantic connexion implied here. The phonological congruence, at least, leads me to include the GYA form.

Residue: YIN *juti* 'White plumed Honeyeater' 4. The shifting of intervocalic **rr* to *t* in YIN is sporadic in nature, as is the case also in NYA. The same applies to the innovation of **a* at V_2 to *i,* also in YIN. The identical development in GYA, however, is conditioned by the *y* of the enlargement.

J97	spPN	*jurra(ng)	fire	
	NYA-W	jurra	glare of distant bushfire—e.g., 15 km away	5
	NYA-S	jurra	lights on horizon	5
	pKR	*thurrhu	fire	4
	BTJ	jurra	camp, home, house	3
	GOR	jurra	home, house	3
	NUN	jurrang	fire	4
	MUR	thurran	smoke	2

The loss of a final nasal outside of parts of the East (Dixon 1980) is again illustrated here. The NUN and MUR forms differ as to the nature of this nasal, and more research is needed.

The two NYA ddialects exhibit semantic narrowing. The connexion between 'fire', 'smoke' and 'camp, home' is recapitulated in pPN **puriny*: compare YDN *puri* 'fire, WER-D *puriny* 'smoke', and YUL, PIN *puri* 'shade or sun shelter'.

Residue: For pKR **thurr.p.a* 'ashes', with *p*-incretion and unique semantic change, a PR of 1 is indicated.

J98	pPN	*jurrki-	dive	
	WRY	jurrki.rta	moon ("that which dives below Western horizon")	3
	GUP	djurrku.ḏup.thu-n	dive, fall head first	4
	GYA	jurrki-l	change direction, turn…	3
	GID	jurrkaa.y	waterfall ("falling water")	3
	NGO-S	jurruk	dive	4

Some imagination is required to grapple with the semantics here. But pDN **tarta,* with reflexes in NYA-W *tarta.rta* 'moon' and WLM *tarta-ya-nu* 'enter, go inside', conveys the same image of the moon plunging below the western horizon as the WRY form does. Moreover, the same *–rta* enlargement appears on the NYA-W term just cited and that tabulated for WRY above. This could be coincidence, but could also point back to a time in the remote past when noun classes were present generally in Pama-Nyungan. See Sands (1995).

The notion of 'turning' or 'rolling' with reference to heavenly bodies, as evidenced in the GYA form, appears independently in reflexes of pPN **parlpa-* (O'Grady 1990f).

J99	spPN	*jUrrpi(l)	dark red	
	NGL	jurrpa.lyi	blood	4
	GUP	dhurrpi.nda	wild plum y	3
	GYA	jurrpil	reddish color	4

Two of the forms contain enlargements.

J100	spPN	*juway	[a kinship term]
	PIN	juwa.ri	female Ego's sister in law
	NMA	thuwa	FaSi, SoSoDa
	THL	thuwa.ni	sister in law
	GUP	dhuway	FaSiChild, cousin, husband
	WMK	thuw	son or daughter (ws)
	GYA	juway	SiChild (ms), BrChild (ws)
	BGU	thuwa.na	Son (?)

See Alpher (1982, 1997).

[An aside: this writer, GN O'Grady, hopes to offer a limited additional number of representative cognate sets for each of the fifteen initial (sub)pPN consonants. These will be supplemental to the 1561 velar-initial cognate sets which SA Fitzgerald presents in her magnificent ground-breaking 1997 work.

Due to my declining health, the labour of entering the material on computer has become the main bottleneck to the progress of the work.

I will therefore present much of the following work in skeletal , i.e., telegram style. An example of this compressed format is given below.

> pPN *jija-* 'lick'. YIM *jija-l* 'lap, lap up, drink, suck' 3: BAA *thiitha* 'lick' 4.
> Becomes
> pPN *jija* 'lick'. NYA (prenasal), YIM. BAA. See OG files]

Addenda to *J-

J101 spPN **jaka(l)* 'bottom'. WLP, YDN, Sem: NYA-W *marna.* See OG files.

J102 pPN **jaku-* 'mime, dance, play. NYA (IS), THL, KLY, WEM, . OG 1990c88OG TR 1990:112-113

J103 spPN *jAkujaku* 'tired'. PIN, YDN, OG & TR 1990:106

J104 spPN **jAla-* 'run'. PAY, KLY, GYA. See OG files.

J105 spPN **jAlmpi* 'rib'. PNG, GUP, KLK; further reflex somewhere in Q'ld – temporarily lost track of. Would supercede *jAmpi.*

J106 pPM **jAlmpv-* 'climb. LIN, YDN. See OG files.

J107 pPN **jAlpu(l)* 'mud'. YY, YDN, BAA-BAR. Perhaps ultimately related to J15 **jAlpa* 'wet'. See OG files.

J108 spPN **jAlya*$_2$ 'now'. MDB-W, DYI. Fitz 1997b:157.

J109 pPN **jaalyam* 'saliva?', 'salt?' MRN, YGD-S, BNJ. OG 1990d:95

J110 pDN **jama* 'stingy'. NYA, WLP. OG 1979:121

J111 spPN **jaami* 'mother's father, MoFa?' NYA, KAU, UMP, DYL. See OG files.

J112 pPN *j*ana* 'they (three or more)'. This pronoun is Capell's (1956) **dana.* NYA, WLP, YUL, pK, pKR, KLY, BNJ. See OG files.

J113 pPN **jana-nya* 'they-ACC', them'. NYA, YUL, pK, pKR, KLY. See OG files.

J114 pPN **jAna-* 'stand'. PAR, pP, JGY, YDN, GID. Koch 1997:293, OG files.

J115 spPN **jangka.r-* 'laugh'. WLM, pP. Hale 1976c:58

J116 pPN **janpa-* 'bathe, wash' NYA, GID. See OG files.

J117 spPN **jantu* 'artifact'. WLM, NGL, WMK. See OG files.

J118 spPN **jApa-* 'suck, kiss, drink'. KAU, PNK, KLY. See OG files.

J119 pP **japi* 'hit'. UMP, BAK, YIM, G-YA. See OG files.

J120 pPN **jaapir* 'lip, verge, entrance'. NYA, WLP, YIM, MDI. OG 1990c:88-89.

J121 pPN **japun* 'young one, offspring'. NYA, PIN, GID, GUM. OG 1990c:89.

J122 pPN **jaarang* 'mouth, opening, hole'. NYU, GUP, KLK, pP, DJA. OG 1987:517-518.

J123 pNYY **jara.ngka-* ‘peer at, recognize’. NYA, PIN, GUP. OG 1990c:90-91.

J124 pNYY **jarli* ‘grass’. PIN, PAY. See OG files.

J125 pNYY **jarntarr.* ‘bent …as knee’. PIN, THL. OG 1990d:149.

J126 pNY **jarntu* ‘possession, private property’. GRJ, WLM, PIN, pNG. OG 1995.

J127 pNYY **jarra* ‘flame’. WLP, PAY. See OG files.

J128 pPN **jarra(n, ng)* ‘thigh; fork of tree’ (>DUAL’, ‘two’). This form is Capell’s (1956) **darang* ‘shin’. NYA, WRN (marker of Dual number in both); PIN, KLY, M-GU, pCNSW.

The genesis of the anomalously trisyllabic spPN numeral **kuujarra* ‘two’ may well lie in the suffixing of **jarra(n, ng)* to pPN **kuju* ‘one’. This would have resulted in **kuju + jarra(n, ng)* ‘two ones’ (= ‘two’), with subsequent haplology and V_1 lengthening. For the semantics, compare WLP *malja.rlawurlawu* ‘…of fingers …splayed’ …(my emphasis) with Ganalpingu *maltja.na* ‘two’ (Lawson and Lowe, n.d.) from pNYY **mAlyja.* See Capell 1956.

J129 pPN **jarr(k)any* ‘frog’. pNG, pP, UMP, WMK, GID. OG 1995.

J130 pPN **jarru* ‘large bird sp’. pNG, G-YA, DYI, YY, BAA. Alpher 1997:12

J131 pNY **jarta* ‘cul-de-sac; blind’. NYA, YUL, KAU, NMA. See OG files.

J132 pDN **jarti* ‘bat’. NYA, WLP, GRD. See OG files.

J133 spPN **jArtu* ‘shade’. PIN, YDN. OG & TR 1990:106.

Note: It will be seen that in many of these cognate sets I am limiting myself to citing just three or four representative languages in which reflexes are attested. I do this for two reasons: (1) Citing many languages with reflexes would result in the present work’s never being finished. (2) Since about 1985 I have found the task of individually seeking cognates in thirty languages increasingly onerous, bearing in mind that (sub) proto-Pama-Nyungan will undoubtedly , in the final analysis, be found to be host to at least 4,000 cognate sets.

I am attemptig here to contribute to the refutation, in a decisive fashion, of RMW Dixon’s vast but nevertheless totally unjustified attack (1980) on the genetic validity of Pama-Nyungan. This language family was originally (1961) characterized by Ken Hale as “the largest coherent genetic linguistic construct in Australia”. In offering this contribution, I am placing particular emphasis on the detection of cognates from far-flung Pama-Nyungan languages – e.g., Nyungar on the one hand , and Kala Lagaw Ya on the other.

Unlike Dixon, I regard such cognates-at-a-distance, even if from only two languages, as extremely valuable in attesting Pama-Nyungan genetic validity. (I prefer, however, to detect cognates from one, two, three or a few further representative Pama-Nyungan languages). Indeed the probability is huge that those with access to the colossal ASEDA electronic lexical file at the Australian Institute of Aboriginal and Torres Strait Islander Studies will be able to fill in many of the ‘ghastly blanks’ remaining in my own work. These remarks apply especially to the languages of southeastern Australia, including Yaraldi, in many of which I have carried out cognate search only superficially or not at all.

Many more cognates will undoubtedly be found which embrace the languages of the southeast, and many spPN reconstructions will correspondingly be elevated to the status of pPN.

J134 pPN *_jarum_ ‘thing, object, artifact’. NYA, GUP, KLY, WEM. OG 1987:251.

J135 pPN *_jaawa_ ‘mouth, opening’. NYA, pP, TAY, WEM. OG 1990c:90.

J136 pPN *_jaya-_ ‘send’. PNG, GUP, KLY, YAR. OG 1990c:95.

J137 pPN *_jija_ ‘lick’. NYA (prenasal), YIM, BAA. See OG files.

J138 pPN *_jIjI_ ‘semen, POTENTIAL (or ACTUAL) child’. PIN, NYU-N, WOL. See OG files.

J139 spPN *_jili.ka_ ‘prickle’. KAY, ARR. Koch 1997: 300. See at pPN *kil.k.a

J140 spPN *_jilya_ ‘child’. NGL, GYA, B-GU. Fitz 1997b:169.

J141 spPN *_jilyja_ ‘sinew’ (> ‘sandhill’ in WLP). WLP, pCK. See OG files.

J142 pPN *_jinang_ ‘foot, paw, foot- or paw-print’. NYA, GUP, GID, WEM. Capell (1956) Common Australian *_dinang_. Hale (1974) early pPN *_jina,_ Dixon (1980), OG (1990c:91-92) late pPN *_jinang._

J143 spPN *_jingka_$_1$ ‘east’ (< white, dawn? – see at *_jingkal_ below). See spPN *_jilngku_ ‘east’ OG 1990c:91-92, OG & Fitz 1995:463.

J144 pPN *_jingka_$_2$ ‘vagina’. YDN, GID: possibly also WLP _jingki.rr.pa_ ‘rod’ by antonymic change. OG 1990c:92.

J145 pPN *_jingkal_ ‘white’. WLP, PAY, KLY (‘brain’ < ‘white/grey (matter))’. YIM, BNJ. OG 1990c:92.

J146 spPN *_jinka_ ‘dead’. NYU, PAY, G-YA; possibly GUP. See OG files.

J147 spPN *_jintu_ 'one'. NYA, WRL, WLP, G-YA (IS). See OG files.

J148 spPN *_jira-_ 'sneeze'. pM, KLY.. See OG files,

J149 pNYY *_jirli_ 'arm'. NYU-N, pNG, PAY. If YDN _tila_ 'long feather' is a further cognate, then the reconstruction would be either *_tIrla,_ *_lIrla or_ * _rirla_ (i.e. *_Tirla_). See OG files.

J150 spPN *_jirlpu_ 'old man'. PIN, UMP, JGY. See OG files.

J151 pPN *_jirlpu_ 'bird'. WLP, BAA. See OG files.

J152 spPN *_jirra_ 'east'. NYU-N ('north'), PAY (IS). JIW (IS, 'top, above.), KAY ('north'), pKR, ARR, YAK (IS). See OG files.

J153 pPN *_jirrijirri_ 'Willy Wagtail'. NYA (prenasd) (sic), NYU, NMA, GUP, WEM. OG 1990g:459.

J154 spPN *_jirr.k.u_ 'sharp-pointed'. NYA, WLP, RIT, YIM. OG 1990c:99.

J155 spPN *_jirru_ 'outward or upward extension'. WLP, YGD, pP, DIY (OG 1990c:99-100).

J156 pNY *_jirta_ 'bird. WLP, PNK, WIR, YGD. See OG files.

J157 spPN *_ji(r)ta.(r)n_ 'back of neck/head'. NYA-W, NUW, KAY, ALY. (Koch 1997:281)

J158 spPN *_jiiru_ 'sun'. PTJ, PIN (prenasd), KAU (prenasd), NMA (prenasd), > 'red…'. YIM, GYA. (OG 1990g:460).

J159 pNY *_jitaly_ 'grasshopper'. WRA (prenasd), NYU. (OG 1990g:458).

J160 pPN *_juu-n_ 'put, put it to, say to'. NYA (> verb-forming suffix), YUL, GUP (> verb-forming suffix), GUM (Dixon 1980:405, OG 1990c:146).

J161 spPN *_jUja-_ 'flow'. PNK (> 'cry'), KLY (IS), YDN (> 'urine'). See OG files.

J162 spPN (sic) *_juji_ 'bird'. PNK, pAR, KAY (Koch 1997:300), PIT, pP, YIM. Koch recontructs this root as *_thuthV_. Contra Dixon (1970) he posits two separate series of laminal consonants, evidently *_th,_ *_nh,_ *_lh_ and *_j_ *_ny_ *_ly_, for pPN. In this he is indeed correct. My present work is on going, and will have to be recast to show, for example, J104 *_jAla_ 'run' still reconstructing with initial *_j_, but J19 *_jama-_ 'bury, cover' revised to *_thama-_.

J163 spPN (sic) *_jUji-_ 'push'. NYA, KLY (IS > 'pull'), WMK (> 'pull out, pull off'). See OG files.

J164 pPN *_juka-_ 'drink, soak up', PIN, KLY, YDN, GID. PG 1990c:92.

J165 pPN *_jUka-_ 'copulate with'. pNG, KLY, UMP, GID. OG 1990c:93.

J166 *_juuka-_ 'track, follow the trail of'. NYA? PAY?, PIN, GUP, UMP, GUM. OG 1990c:92-93.

J167 spPN (sic) *_julu_ 'spear'. GUP, KLY, UMP. See OG files.

J168 spPN (sic) *_jUlu_ 'butt'. NYA, PAY, YDN. See OG files.
J169 pNY '_julu.rn_ 'sp. grass'. PIN, NMA. See OG files.

J170 spPN *_jUly-_ 'squeezing'. NYA-W, YDN. See OG files.

J171 spPN *_jUlya_ 'old person, ancestor'. pK, MDB, GUP, DYL. Fitz 1997b:169.

J172 spPN *_juma_ 'fire'. NYU-N, NMA, pP. OG 1979:121.

J173 spPN *_junyju_ 'narrow. NYA, pK, UMP, YIM. OG 1990c:94.

J174 pPN *_jupang_ 'saliva'. WLP (IVW), PIN, GUP, GID, BAA. OG 1990g:453.

J175 spPN *_jupay_ 'small'. NYL (prenasd), pM (prenasd),), PIT, KLY (borr in MIR), UMP, YIM, MUL. See OG files.

J176 spPN *_jura(n)_ 'alive' . MDB-E (> 'living being, person' > 'man/male' > 'penis'), NUK (> [Aboriginal person, man]), GYA. For the semantics, compare the evolution of J56 *_jiip(n)_ in MNG-N, and note pNY *_nangk_a (> NYA-W 'erect penis')'

J177 spPN *_jurrkul_ 'straight, correct'. PNG, WLM, WMK, YY, YIM. Dixon 1980:101.

J178 pPN *_jurrung_ '(POTENTIAL) snake' – (see OG reference below). NYA, GUP, YDN, GID (> 'leech', cf the semantic evolution of *jUnam). GIP. OG 1990c:98-99.

J179 pNY *_jurtu_ 'elder sister'. PIN, pNG. See OG files.

J180 pNY *_juru_ 'soft'. NYU-N, NMA. See OG files.

J181 spPN *_jUru_ 'sun' (as one with J158 *jiiru?). PAY, WRY, KLY, NGW. See OG files.

J182 spPN *jUrV* 'sweet-tasting'. NYA, pCK, KLY. See OG files.

J183 pDN *juti-* 'pour, spill'. NYA-W, PIN. S ee OG files.

It is pertinent at this stage to ask the question, 'Is the above display of 183 reconstructions in (sub-)proto-Pama-Nyungan **j-* essentially complete?' Indeed it is not! It is far from complete! In this regard, three facts need to be kept in mind.
(1) SA Fitzgerald in her magnificent 1997 work on initial velars in pPN, was able to bring together 838 cognate sets with initial **k-*
(2) Yidiny appears to be quite conservative in respect to its retention of pPN **j-* and **k-*, so that the frequency of occurrence of these two consonants word-initially in modern Yidiny should approximately mirror that in pPN.
(3) This frequency of occurrence can be expressed by the ratio15 : 23 (Dixon 1977:38).

It follows that the number of pPN reconstructions in **j-* in a study as thorough-going as that of Fitzgerald, and making similarly sophisticated use of modern computer technology, will be of the order of (838 x 15) divided by 23 equals 550, let's say.

Therefore, the 183 **j-* sets + two **th-* sets (below) amount to a paltry 34% or one-third of the number of sets with initial laminal stop(s) which are ultimately reconstructible. (The above calculations assume a discard rate of 5% of Fitzgerald's **k-* sets and an intake of new sets of like size.)

*TH-

TH1 pPN **thulpu* 'sand'. WLP, KAY, JGY, BAA. Koch 1997:300.

TH2 spPN **thuthV* 'bird'. Koch 1997:300. See J162 *juji, above.

TH3 pNYY **thuyu* 'holy, sacred, forbidden, magic'. WLP, GUP. See OG files.

*K-

Of the circa 4,000 stems ultimately reconstructible to (sub-)proto-Pama-Nyungan, a few in initial **k-* are presented below. These are additional to those appearing in Susan A. Fitzgerald's truly trail-blazing 1997 dissertation, 'Velar-Initial etyma and issues in Comparative Pama-Nyungan.'

K839	spPN	*kamaN	bone, bonelike	
	NYA	kama.ri	bone	3
	GUP	gämu.rra	decay (teeth)	2
	UMP	kaman	tooth	3

Since pP merged **ny* with **n* word-finally (Alpher, personal communication), we reconstruct *-*N* on the basis of UMP –*n*.

K840	spPN	*kami.nyja.rr	grandchild	
	GUP	gami.nya.rr	…grandchild	5
	YIM	kami.nhtha.rr	same side grandchild	5
	G-YA	kami.nja.rr	daughter's child	4

The regular loss of a stop following the homorganic nasal in GUP is seen here. Compare J123, which descends in GUP as *dhara.nga-n,* and note pPN **wanyja* 'where' > GUP *wanha.*

K841	pEPN	*kanga	cover	
	KLY	goenga.w -[3]	skin of a man ("cover")	3
	WMK	kanga-n	cover	3
	BAA	kanga.ka	inside here ("under cover"?)	2
	WOI	kangoi.n (sic)	feather ("cover"?)	3

What lends added strength to this putative cognate set is the fact that forms of the shape **kangV*(…) are amazingly rare in Pama-Nyungan languages. The vast Warlpiri lexical storehouse (Laughren and Hoogenraad 1996) pioneered by Ken Hale contains just one form of this shape, namely *kangi.ny.pa* 'unknowing, ignorant …'. The far-out thought even comes to mind that this may be a further cognate (PR:1 ?), showing a semantic development 'covered' > 'having blinkers' (so to speak) > 'unknowing'

Graduate students in linguistics! I appeal to you to run an electronic comparison between 'cover' and 'ignorant' in at least a hundred Australian languages! This will bring you face to face with questions such as: "Since Umpila *yu'ay* means 'ignorant', is there a verb **yupa-*, **yura-*, **yurra-*, **yuta-*, **jupa-*, **jura-*, **jurra-*, or **juta-* (i.e., allowing for all known sound correspondences) anywhere in Pama-Nyungan that means 'to cover'?

Confidence in the validity of KLY *goenga.w* as a cognate is enhanced by the knowledge that English 'hi.de' (of an animal) goes back to proto-Indo-European **(s)keu-* 'to cover' plus a **t*-enlargement (Harold Koch, personal communication).

K842	spPN	*kapa-	have sex with, copulate	
	PNK	KAPPA.KKA-TA	love, court	4
	YIM	kapa.l (vulgar)	have intercourse with	4

NYA-W *kapa.kapa.ma.Na- …rninyi* V-reflex 'masturbate' 4 and NGI *KUPPA.KUPPA.MU.RRA,* putatively */kapa.kapa.ma-Ra/*, 'masturbation' 4 (Mathews 1904:226) (reconstruct pPN **kapa.kapa.ma-*) attest to a morpheme of reduplication of Pama-Nyungan age, which has ATTENTUATIVE semantic force. This morpheme is in evidence also in NYA-W *karli-karli-nyi* 'scratch' versus *karli-nyi* 'dig', for example, or in *wirla-rn-wirla-rna* 'pat' versus *wirla-rna* 'hit, kill'.

K843	pEPN	*kaapa(n, l)	rain	
	pP	*kaapa	heavy rain (Hale 1976)	4
	JGY	kapan	rain	4
	YDN	kapa.nU	rain	4

---

[3] The significance of *-ng-* in relation to non-borrowing from a Papuan source.

	WEM	kapoel	river	4
K844	pEPN	*kApiN	emu (flightless bird)	
	DYI	kapi.rri	emu	4
	WER-D	kawi.rr	emu	3
	CON	KAPPIN	emu	4

The *-N in the reconstruction reflects the indeterminacy in the final coronal nasal of the CON (= 'Lake Condah') form. (Curr 1887:III:490). The DYI and WER-D forms contain enlargements. That Intervocalic Weakening has operated in the latter language is confirmed in WER-D *tawa* 'hit…, chop…' cognate with DIY *taka* 'pierce…punch, kick..', GUP *dak.thu.n* 'cut' and YDN *taka-L* 'cut, chop', from pPN *_taka-_.

The above cognate set is of particular interest: Dixon (1994), contra Alpher (1991), proposes that YY *pirri* 'emu' is cognate with DYI *kapirri* 'emu' above. Alpher, on the other hand, correctly assigns YIM *purri.wi* 'emu' as a cognate of the YY form. See (eventually) my pPN reconstruction _*purri_ 'emu', where a further cognate … in WOI … namely *BOORRI-MUL* 'emu' is listed.

For Dixon's proposal to be correct, Dyirbal would have to be either (a) a prefixing language (which it is not), or (b) a language in which compounding of monosyllabic elements (such as *_ka_) with disyllabic elements (such as _*pirri_) is possible. I know of no evidence whatsoever that would go to support such a claim.

K845	pPN	*kilka	sharp (point)	
	pNY	*jilka	thorn, spine	
	WLP	jilka.rla	spine of echidna	4
	PIN	jilka	thorn	5
		jilka.marta	echidna	4
	PNK	ILGA	thorn	5
	DIY	jilka / dilka	thorn	5
	YIM	kilki	alert, suspicious, watchful, jealous	3
	BAA	kiilka	centipede	3

K846	pPN	*kIlu(n, ng)	sharp (point)	
	PIN	kilu.rru-nu	spear right through	3
	NYU-N	JILLA.P / jila.p	sharp point	3
	NUN	kilin	nails	4
	WRJ	kilung	sharp	4
	WEM	jilung	centipede	3

The above two sets are discussed together, since they are clearly related, though quite anciently: K845 is a by-form of K846 which underwent incretion via a semantically contentless –*k*-. In both cases *_k_- has shifted to *j*- in certain languages under the influence of the following _*i_ (e.g., in PIN *jilka*, but, strangely, not in PIN *kilu.rru-nu).* In K845, WLP, PIN, DIY (and PNK) share this innovation – a fact that may provide a clue as to the wider subgrouping of Karnic within the Pama-Nyungan family. Two reflexes in each set contain enlargements. V_2 has assimilated to V_1 in the YIM form in K845 and in the NUN in K846. In the latter set, **u* has lowered to *a* in NYU-N.

The feeling that *SHARP has shifted semantically to 'centipede' (in BAA and WEM respectively) is heightened by the fact that this innovation is indicated for both presumed cognate sets. The putative shift from *SHARP to 'alert', etc. in YIM is supported by the collocational possibilities of UMP *kitharri*, which allow for such expressions as *waku kitharri* 'sharp axe' and *ku'un kitharri* 'keen-eyed, sharp-eyed' (note: incidentally the English use of 'sharp' also.)

K847	pPN	*kIngka-	laugh	
	WLM	jingki.rti-ma-nu	laugh	4
	BDM	kingki-	laugh, shout	5
	pCK	*kingka-	laugh	5
	G-YA	kingki.n.kingki.n	amusing, cute	3
	YAR	KANGKI-N	laughing	2

As in K845, there is fronting of **k*- to *j* preceding the high front vowel – this time in WLM, a Nyungic language like WLP and PIN. In WLM, BDM and G-YA, assimilation of **a* to **I* has occurred. Also in WLM, a nominal form *jingki.rti* / *jingki.rri* 'laughing' is attested. See Fitzgerald (1997:118). Vocalic metathesis appears to have taken place in YAR. This problem needs to be studied further – hence the PR of only 2.

YAR probably stands genetically farthest apart versus WLM, BDM, pCK, and G-YA, and so it is possible that metathesis took place in the immediate common ancestor of these four languages. In this event, the reconstruction would take the shape **kAngki-*, rather.

K848	spPN	*kini	penis (Fitz 1997:118)	
	pNY	*yini	name	3
	KAY	etne	name	3
	DIY	kini	penis	5
	YAN	-wini	name	3
	KLY	INI	penis	5
	YDN	kini	penis	5

There are examples of the weakening of **k*- to *y*- (or of initial **k*-dropping, followed by the insertion of a *y*-filler) in Nyungic: YDN *kunyji-L* is 'expose, open out', while NYA-W *yinyji.pi-ni- …*#a means 'untie, open, undress' from spPN- **kUnyji*. PNK *KO* is 'shelter, fence', while PIN *yuu* is 'windbreak'. And KAU *KARLTA-NDI* is 'shout, call, halloo, cry', with PIN *yarlti-ngu* meaning 'call'.

A parallel example of the semantic shift *PENIS > 'name' is evident in GAL *kuli* 'name' versus PAY *ku (r)li* 'penis' and possibly GID *kulil* 'lively, active', from pNYY **ku(r)li* (for the semantics cf **jUra(n)*.

Terms for other body parts have been pressed into service as words for 'name' in pA **rirrang* 'tooth', which becomes YDN *tirra* 'tooth', 'name', 'seed', 'hail' and GRJ *yirra.ru* 'name'; in spPN **ngUnya* 'skin', which becomes YDN *Ja ngunya.ngil* with the same four meanings as YDN *tirra* above; in pPN **miiju* 'skin' (cf YAR *MITYE*, MLY *miiji* 'name'); in spPN **yaku* 'skin' (cf GUP *yäku* 'name'); and in spPN **yipa(l)* 'skin', which descends into KLK as *ipal* 'name'.

K849	spPN	*kirar	soft skin	
	WLM	jira	fat, butter, margarine	5
	YUL	jira	fat, grease	5
	YDN	kirar	soft skin	3

There is a dearth of parallel, independent examples of the shift (*GOOD) > SKIN > 'fat, grease': pPN **mapu* 'good' > NYU-N *mapu,* NYU-E *mop* 'skin', but UMP *mapu.rra* 'fat, grease'. (Cite PIN, WRN **palya* here) (sic). The spPN root **kArnu* 'skin' retains this form and meaning in NYA and PNG, but becomes GAL *karnu,* BDM *CARNO* 'fat, grease', JIW *karnu* 'body' and pKR **karna* 'person'. (The research behind these findings was inspired mainly by the work of David Wilkins.).

K850	pPN	*kiirtany	father	
	WLP	kirda	father	3
	GUM	kiitany	moon, month	5
	YAY	iitany	moon	5

The WLP form shows the regular Nyungic vowel shortening. The exceptionless Eastern merger of retroflex segments with alveolar is in evidence in the GUM and YAY forms. The loss of the initial consonant in YAY is characteristic of that language.
In terms of Australian Aboriginal cosmogony, the moon is male and the sun female. This perception is woven into the very fabric of Australian languages. Fitzgerald (1997a:181) cites a root **ngAngkV* which descends into NYU-E as *ngangk* 'mother; sun…'. And **yaku* becomes MRN *yaka*, NYU-N *yaku,* NYU-E *yok* 'woman, female', but pK **yaka.rra.ngu* 'sun'.

Residue: WLP prenasalized and enlarged *kirnta.ngi* 'moon'.

K851	pPN	*kiwar	afraid, ashamed	
	GUP	giya.l.kiya.l	in a whisper	3
	YDN	kiwar	frightened, cowardly	4
	GID	kiwaay.kali	one who constantly looks around him	4
	WRJ	kiya-l	be afraid, ashamed	4

The –*w*- has assimilated to the preceding *i* in GUP and WRJ. (Because of an element of doubt, the PR for the forms in these two languages is lowered by one point). The GID suffix -*kali* denotes (a) typified by or (b) masculine gender. I do not consider the *l*'s in the GUP reduplicated form to reflect the final -**r* of the reconstruction, but to be enlargements.

'In a whisper' in GUP could refer to a real-life context in which a person is afraid or ashamed to speak up, but this is not necessarily the case – hence the lower PR of 3.

On the other hand, 'one who constantly looks around him' almost certainly would be a person who is afraid, e.g., of a pursuer.

K852	spPN	*kUjV-	send, emit (e.g., smell)	
	WLM	kuji.ri.rri.ny	aroma of food cooking	3
	JIW	kuju.ru	word; story; news; smell	4
	WMK	kuch-an	send [including send word]	3
	YDN	kuji-L	emit smell	4

The quality of V_2 cannot be reconstructed on the above evidence and is hence demoted by V. The WLM deverbal noun contains an unusual concatenation of three successive enlargements.

The concepts 'send' and 'emit smell' seem to be relatable plausibly enough. More cognates should be sought in order to confirm this.

K853	spPN	*kuuka	news; language	
	WLM	kuka	news of a death	5
	WLM-E	kuka.ri	news of a death	4
	KUK	kuka.ja	Kukaja language	4
	YAN	wuka	language	5
	pP	*kuuku	language, speech	5
	UMP	kuuku	language	5
	GYA	kuku	news; talk, language	5

The pP reconstruction is from Hale (1976c), and shows assimilation of spPN- V_2 to V_1. The merger of pPN long vowels with short in Nyungic is mirrored in WLM.The same merger in GYA occurred independently. The WLM and WLM-E forms show with unusual clarity the semantically contentless character of the enlargement *–ri,* since with or without this element the meanings are identical.. The semantic 'gap' perceived by a speaker of a Eurasian language between 'news' and 'language' is bridged by the GYA form. WLM shows semantic narrowing.

K854	spPN	*kUka	[meat-related term]	
	PIN	kuka	meat, animal	3
	NGL	kuka.lya.ku.ra	Blue-bone fish	2
	YDN	kuka	skin, leather; bark; bark canoe	5
	DAR	kuka	bark	5

The NGL form shows an unusual string of three enlargements. I suggest here that 'skin' and 'meat' are related as part and whole. 'Meat' and 'fish' in no less than three other stems: *kuyang, *wakany (> *waka.ri in a large number of languages) and *yUrta (See McCon 1997). Nevertheless, a PR of just 2 is suggested for the NGL form, above since 'Blue-bone fish' stands semantically rather far from the other meanings.

K855	pEPN	*kuuku	here	
	UMP	kuuku.’u	from here	4
	GNG	kuku	here, hither	4

The last syllable of the UMP form has to be considered a contentless enlargement, at least in the present state of knowledge.

Allthough the above putative cognate set involves only two languages – both eastern – it seems reasonably secure, and is offered here in the expectation that other workers will be able to add further Pama-Nyungan cognates to it. Every secure cognate set has its beginnings, after all, in such a pair of languages.

For this reason, I fail to comprehend RMW Dixon’s (personal communication) refusal to accept any Australian cognate set based on just two languages. Such a set – if the two forms are indeed cognate – will almost surely be ultimately fleshed out by those scholars who are in a position to compare scores of languages using state-of-the-art electronic means.

A warning about prematurely pigeonholing forms as ‘areal’: time and time again in this work, I have been able to unearth, in some far-flung language(s), cognates of an item formerly thought to be confined to one small corner of the Pama-Nyungan speech-area. A case in point is Gamilraay/Kamilroi (KAM) *yara* ‘sun’ (Holmer 1983:452). One could well be lulled into believing that this lexical item is confined to one small part of New South Wales.

One day in June 1953, eight Marrngu and I were mustering wethers in 110 square kilometers Eliamulgarra / *yilyamalkarri*/ Paddock on Wallal Downs in Northwest Australia. We arranged to meet for lunch by a certain small rockhole. The southeast trade wind was unusually strong and cold (for that torrid region), blowing in a completely clear sky. The maximum temperature that wintry day barely attained 24 degrees Celsius (75^{0} Fahrenheit – ED). The Aboriginal riders chose to eat their lunch, sculpting boomerangs the while, sitting in the sun! This was a rare event, and they commented to me that they called this *yAra.rri.ngi kaja.rna* ‘sitting in the sun’. (Note that ‘sun’ in Nyangumarta is normally *karrpu*). Thus pPN has a new root, _*yAra_ ‘sun’ (which is also reflected – albeit in a prenasalized form – in proto-Ngayarda _*yarnta_ ‘sun’ and in WARR *yarnda puna* ‘sunshine’.

K856	pPN	*kuma(n)	one, unity	
	NYA-W	kuma.lyi-	orphan	3
	KAU	kUma	one; another; also, too	5
	ADN	upma.nha.ka	one	4
	PNK	KUBMA.NNA	one, alone	4
	WIR	kuma	one	5
	NMA	kuma	together	4
	YIN	kuma	Assembly Hill	4
	PCK	*kuma	bundle	4
	KKY	KOMA KOMA	one by one	4
	WMK	um (puk um)	motherless child	3
	YIM	kuma	doubled up, folded, coiled	3
	YDN	kuman	one, alone	5

	WEM	kuma	raw meat	3

The loss of initial **k* in ADN is regular, as is that of V_2 in WMK. The loss of initial **k* in WMK has occurred in a limited number of cases. The prestopping of **-m-* is shared by ADN and PNK.

All of these meanings share the notion of UNITY. The semantics of **kuma(n)* is partially recapitulated in reflexes of **kUrnim* (O'Grady and Fitzgerald 1997). For 'bundle', note WLM *kayan-ta-kuji-* (one-LOC-CAUSATIVE) 'make into a bundle; unite; make into one'. The notion, as in WEM, that 'raw meat' is a unity (i.e., not yet apportioned to kinsfolk) appears again in reflexes of **kAyal* (in MRN, pMA, WLM, GYA and WER-D) and **kUrri* (in PAY and JGY).

The **kuma(n)* cognate display serves as a vivid reminder that in carrying out comparative reconstruction in Pama-Nyungan (or any other language family), the researcher should avail herself/himself of the entire lexicon, including place names – not just a 500-word list, for example. This desideratum is dramatically illustrated by the necessity to include the Yindjibarndi 'Assembly Hill' form above.

K857a	spPN	*kUmaN	[death naming taboo term]	
	WLM-E	kumu.nyja.yi	no name	[5]
	WLP	kumu.nja.yi	no name	[5]
	WMK	kumanh	word used for articles left by a dead person	4

Diffusion involving WLM-E and WLP is a distinct possibility, but this does not alter the fact that far-off WMK shares a true cognate with whichever Desert Nyungic language is the source of the term.

K857b	pNYY	*kUmpi	one	
	YUL	kumpi.nyu	one	3
	GUP	gumi.ri.ny	unripe, uncooked	3

K858	pPN	*kunang	faeces / feces (Capell 1956)	
	WLP	kuna	feces; anus; intestines	5
	NYU-N	kuna	feces	5
	pNG	*kuna	excrement	5
	pKR	*kuna	feces	5
	KLY	KUN(A)	hinder part..., stern of canoe	3
	pP	*kuna	excrement	5
	YDN	kuna	abdomen, bowels; middle	5
	GUM	kuuna	feces	4
	TWD-R	KOONUNG	excrement	5
	IOR	GUNI	feces	4
	GIP	kwanang	excrement	4

The GUM form, with its long V_1, is at variance with the pP reconstruction of Hale's, and is anomalous in this regard. IOR *GUNI* is the result of a shift from **a* to *i,* for reasons unknown. Since forms with final *-a* such as *DARRA* 'leg, thigh' (< pPN **jarrang*) abound in IOR, this shift must be counted as isolated and idiosyncratic.

Residue: GUP *gula.*' 'feces' 3 and KLY *KUMA* 'dung' 3, each with a minimally differing segment replacing the original **n,* are conceivably the result of Taboo-Deformation. More needs to be known, however, about the degree of likelihood that this process could operate in the Australian culture area on a term for 'feces'.
It is most unlikely that anyone would have a name like 'feces'.

Though this work has proto-Pama-Nyungan as its focus, I include data of which I am aware from languages which would lead to reconstructions clear back to proto-Australian. Such is the case here, where Dixon (1980) has brought into focus relevant forms from the Daly Family languages (Tryon 1974). For 'excreta', Tryon has documented Matngala *kön*, Tyeraity *wön* and Ami *wun*. Initial-Softening (and initial – Dropping) are widely attested within Pama-Nyungan, and it is plausible that this would be the case in Top End languages also. Thus the initial consonant in the proto-Daly term for 'excreta' was arguably **k.* Since languages as diverse as Arabic and Inuktitut are known to front *u* preceding tautosyllabic *n* and *t,* one can make a good case for positing **u* as the proto-Daly V_1. And there is no question but that C_2 in proto-Daly was **n.* Thus emerges pD **kun*, and concomitantly, proto-Australian **kuna.*

Two further pA body-part reconstructions that I have gleaned from Tryon's work on the Daly Family languages are **jarra* 'thigh' and **rirra* 'tooth'.

K859	spPN	*kUntul	cough	
	NYA-S	kuntu.rl	cough	5
	pCK	*kundrru.kundrru	cough	4
	NGW	kuntul	cough	5

The **-l* of the proto-form is taken to have dropped in pre-NYA and pCK, with a *–rl* enlargement being later added in NYA-S. The pCK form is subsequently reduplicated. The shift from **-nt* to *–ndrr-* in Karnic has also taken place in DIY *yindrra-* 'cry', cognate with NMA *yinti-ku* 'drip, flow out', PIN *yinti.rnu* 'dribble, drip, pour' and WIR *inti-rn* 'flow'. These four forms reconstruct to **yinta-* in the immediate common ancestor of Nyungic and Karnic. This, in turn, is a prenasalized vaiant of spPN- **y(I)rra* – witness GYA *yirri* 'running water' and *yirri-tama-l* 'to leak'.

K860	pPN	*kUnya(n)	NEGATIVE	
	WLM	kunyu.ngu.rla	maybe, perhaps	3
	ADN	utnyu	dead; European	5
	KAU	KUINYO	dead person…; a monstrous being	5
	PNK	KUNYU	dead	5
	PAN	kunya.n.pa	asleep	4
	JIW	kunya-ru	lie, tell lies	3
	GUP	gunya.mbi	trouble	1
	YDN	kunya	legendary being	4
	BAR	kunyu	truth	3

BAA	kunha-	dream	4

Residue: BIR *kuny.k.an* ‘ghost’ 3.

Three of the forms contain enlargements. This assimilation of **a* to **U* in the first four languages is a furthe pointer to the genetic reality of the Desert Nyungic subgroup. That in BAR represents an independent development.

The semantic range of the reflexes proposed would appal most Indo-Europeanists, yet within Pama-Nyungan there is a lot of evidence to justify what I am proposing here. In particular, there exist four roots which semantically recapitulate much of the above: **makul, *nyujan, *rawa* and **yakum* (O’Grady and Fitzgerald 1996, O’Grady 1990g). Since the spirits of the dead can be dangerous or at least troubling, there is just a chance that GUP *gunya.mbi* is a true cognate of the other forms, and I am suggesting a minimal PR of 1 for it. The BAR form shows straight-forward Antonymic Change, the developmental sequence being *NEGATIVE > *UNTRUTH > TRUTH. More study of the semantic relationship between NEGATIVE and DREAM in Pama-Nyungan is called for.

K861	spPN	*kunyja	Dreamtime Law	
	WLM	kunyju	strength, rel to tarruku	3
	PIN	kunyju.nyu	straight (spear)	3
	NYU-N	KUNDA.M	dream	3
	NGL	kunyja.rta	woman; female	1
	JIW	kunyja	semen	2
	GUP	gonydji.n	key	2
	KLY	giidha	true story, ‘yarn’…	3
	UMP	kinyja	song	4
	WMK	iinch	traditional dance	4
	YY	kitha	story; totem	[4]
	WRJ	kuthi	sing; song	2

Four of the forms contain enlargements. Assimilation of **a* to **u* has occurred just in Desert Nyungic, represented here by WLM and PIN. In the case of NYU-N there is a question as to whether Moore’s (1884) transcripion represented */kuntham/*. KLY and the three Pamic languages all exhibit fronting of the **u,* and I take this as a hint that KLY and Pamic may constitute a subgroup within Pama-Nyungan. Otherwise, a hypothesis of diffusion may have to be invoked. However, the KLY form shows the regular development of a homorganic pPN nasal + stop sequence to a voiced stop – a fact that flies in the face of any proposal of borrowing. In the case of the YY form, the loss of the nasal is regular. The fate of the nasal in WRJ requires further study, and I suggest a PR of 2 for this form, pending further investigation.

WLM tarruku is ‘law, sacred’ and the meanings ‘straight, dream, story, song, dance and totem’ all cohere with this theme in the Australian cultural context. ‘Woman’, ‘semen’ and ‘key’ are far more dubious, yet the thought comes that ‘semen’ may be regarded as the ‘key’ to procreation (through ‘Woman’).These questions should, in any event, be brought to the notice of interested and knowledgable scholars.

K862 pPN **kuny(j)ang* 'cough'. PIN *kunyju.l.pu-ngu* 'cough 3; GID *kinya.l.kaa* 'cough' 3; KAT *kunyung* 'cough, spit' 4; THN *kunhum.pa-* 'cough' 4; The *–j-* in the PIN form is anomalous.

K863 spPN **kUnyjil* 'mosquito'. KAU *KUNTI.PAITYA* 'moscheto' 3; PNK *KUNTI* 'horse fly' 2; MRN *KOONJY* 'mosquito' 5; pCK *kunthi* 'mosquito' 5.
YDN *kunyjil.pay* 'death adder' 3.

K864 pPN **kUpa-* 'stoop; lower the head -- as when drinking'. NYA-W *pupu.ku.jarri-nyi ... #a* 'bend down; lower the head ..as when drinking' 3; PIN *pupa-ngu* 'kneel, stoop' 4; PAN *kupa.rtu.wi-ku* 'crawl' 3; NGL *kupa.pirri* 'stooped posture' 4; B-GU *kupu thana* 'bend, stoop' 4; WEM *kupa* 'drink' 4.

Residue: WLP *mupu.karri-ja* 'stoop over'…3 (**kUpa- > *pupa > *pupu > *mupu);* WOI *ngupa-* 'drink ' 3. STOOPING or LOWERING THE HEAD in the Australian Aboriginal Weltanschauung is POTENTIALLY DRINKING..

K865 spPN **kuuri* 'bend, curve'. WLM *kuri.rr.ya.nu* 'stagger' 4; KAU *KURI* 'circle'…4; YIN *kuri.waarta.rri-* 'circle back', 'spin around as if dizzy'4; GUP *guri.pa* 'fish hook' 5; pKR reduplicated prenasalized form **kurnti.kurnti* 'crooked 4; DIY *kurdi* 'curve, bend' 4; KLY *KURU.AI* 'rainbow'…3; YIM *kuuri* 'corner, bend' 5.

Residue: YIN *nguri* 'circle' 3; GYA *kuri* 'small patch of scrub' 1.

[Editor's Note: This K865 looks a likely member of a large World Cognate set.-HF]

K866 pPN **kUrla* 'buttocks, butt'. pNG **kurla* 'buttocks' 4; GUP *gul̲i.tji* 'rectum' 5; DJP *gul̲i.tji* 'anus' 5; RIT *gul̲i.tji* 'faeces' 5; pCK **kurli* 'smell'; BAA *kulu* 'butt of tree' 3;

Residue: YDN *kula* 'body' 1; WOI *kuliny* 'man' 1. See Wilkins (1996:285-288).

K867 spPN **kUrli* 'mosquito'. NAN *KOLLA.R.BY* 'mosquito' 3; NGL *kurli.ta.nya* 'Scotch Grey Mosquito' 4; JIW *kurlu.puyu* 'mosquito' 4; YY *korll* 'mosquito' 3. Note also GOO *goorli.nyi* 'mosquito'.

K868 pPN **kurlkan* 'path, pathway'. NYA *kurlka* 'ear' ("pathway to the intellect"?) 5; WJI *kurlka* 'ear' 5; NAN *wurtka* 'ear' 4; pNG **kurlka* 'ear' 5;
GID *kulkan* 'path, track, road' 3,

Residue: PIT *kurlka* 'tail (of animal)' 1.

K869 spPN **kUrlkurn* 'head hair'. WJI *kurlku* 'sling for carrying baby' 3; pNG **kurlku.ra* 'head hair' 4; KKY *kuyk* 'head' 3; KLY *kuuyk* 'head' 3; GNG *kulkun* 'string' 5; GNY *gulgurn* 'string' 5.

K870 pPN **kurlu(n)* 'hot; summer', pNG **kurlu* 'hot; summer' 4; UMP *wulu* 'hot; summer' 5; WOI *wulun* 'hot weather' 5.

Residue: GUM *kuluun* 'rain' (ANTONYM?) 1.

K871 spPN **kUrna$_1$* 'black'. WLM *kurn.kurn* 'black' 3; YIN *kurna* 'charcoal' 3; *kurna.n* 'soft black used as paint…' 4, *kurna.rra* 'black ash' 4; PAY *kurna.ngu* 'black' 4; WRY *kurna* 'ashes' 4; GUP *guna.ng* 'night time…3; KLY *KUNA.R* 'lime, ashes' 3.

K872 pPN **kUrna$_2$* 'throat'. NYA-S *kurna-(ny)* 'swallow' 3; *kurna.n.kurna.n* 'larynx' 4; WEM *kurn* 'throat' 4. For the semantics compare pKR **yurlku* 'throat' with pKR **yurlku-* 'swallow'.

K873 spPN **kUrnum* 'one' (here corrected from O'Grady and Fitzgerald 1997: 351 **kUrnim*, Adj 'all curled up'). NYA-W *kurnu* 'curled up…'; NMA *kurni* 'bent, doubled…'; DAR *kunim* 'sleep'; DIY *kurnu* 'one'. For the semantics, see K856 **kuma(n).*

K874 spPN **kUrpiC* 'whistling, blowing'. PIN *kupikupi* 'small whirlwind' 3; KLY *UPIUS* 'whistle' 3; UMP *kuuypi* 'whistling' 4; WMK *koyp wuu'-an* 'whistle' 4; YIM prenasalized form *kuympuur* 'whistle' 4; GYA prenasalized form *kuwimpur* (sic) 'whistle' 4; MKU *kupiny* 'wind 3; NYW prenasalized form *wuyumpi-l* N 'whistle' 3; WRI *wurpi.l* 'whistle' 3; GNY *gubi* 'whistle' 4; KLK *upi* 'whistle' 4.

K875 pPN **kUrra(n, ng)* 'long', MRN *kurra.rtu* 'short' 4; NYU-N *GORA.D(A)* 'short, stunted' 3; NMA *kuta* 'short' 4; GUP *gurri.ri* 'short' 4; KLY *KUTA.L* 'long' 3; YDN *kurran* 'long' 4; DAR *kurran* 'long, tall' 4; KAT *kurra* 'long, straight' 4; THN *kurraa.rr* 'long, straight' 4; IOR *GURA.RA* 'long, tall' 3; WER-D *kurrung* 'big, tall, high' 2.

K876 pPN **kUrri* 'raw, immature'; hence 'unpaired,,, as of a human, alone'. NYA *kurri* 'young woman without children' 5; NYA-W *kurri.kurri* 'Pleiades, Seven Sisters' 5; PIN *kurri* 'brother's wife' 3; Karlamayi (KAL) *kuti* 'one' 3; YIN *kurri* 'young single girl… 5; PAY *kurri.ka* 'one, alone, only' 3; GUP *gurru.ng* 'FZDCh 3; YDN *kurri* 'raw, unripe' 5; KAB *kurri* 'dog' 2; WAK *kurri* [Aboriginal man] (Antonym) 3; GUM *kuti* 'sweetheart' 4 (cf GUM *putii* Vtrans 'pull out; < pPN **puurri-* 'pull'); WEM *kurri* 'cousin'… 3. Semantic parallels are seen in pPN **kAyal* (as reflected in GYA versus MRN, pM and WER-D), in pPN **kuma(n)* and in pPN- **nguyu* (as seen in UMP and WMK versus ARB).

[Editor's note: GUP's FZDCh equals 'Father's sister's daughter's child'. -- HF]

K877 pPN **kUrrka* 'penis'. WLP *kurrku* 'midway' 3; GUP *gurrka* 'penis' 3; "SWAN HILL" *KOORKO* 'blood' 5; WEM *kurrk* 'blood' 5. A connection between 'urine' and 'middle' is indicated in PAY *kumpu.tharri*, ARR-W *mpu-* 'middle' (putatively from pPN **kumpung* 'urine') Note also NYA-W *parti.ji.rri* 'middle' versus *parti* 'semen'. A link between 'faeces' and 'middle' is seen in YDN *kuna* 'middle' versus *kuna* 'abdomen, bowels' (from pPN **kunang* 'faeces' – Capell 1956). KLY *dhadha* 'middle' fits perfectly into cognate set J17 as a form which underwent prenasalization –

cf YIM *thanhtha* 'excrement' < pPN- **jalya*. K877 and K878 may well be one and the same, the penis being likened to a neck. Furthermore, these roots are quite probably increted variants of **kUrra(n, ng)*, which see.

K878 spPN **kUrrka(n)* 'neck, throat'. NYA-W *kurrnga-rna* 'converse' (L 'chat'), with medial nasal-gradation 3; YDN *kurrka* 'neck' 5; MRG *kurrka* 'neck, throat' 5; GOR *kurrkun* 'noise; salt water' 2; MAN *kurrkun* 'talk, talking' 3.

Residue: BAR *kurrka.rr.ka.rr* 'kookaburra' ("a great talker") 3; WER-D *kurng.kurng* 'kookaburra' (with the wrong rhotic) 2.

[Editor's note: kookaburra is Australian English for a species of bird with a voice like a laughing jackass or so it is said. – HF]

K879 spPN **kUrrkurr* 'sp. bird'. NYA-W *kurrkurr* 'owl' 5; WLM-J,E *kurrkurr* 'sp. owl' 5; MUR *kurrkurr* 'mopoke' (sic) 4.

K880 pPN **kurram* 'dead'. pNY **kurru* 'dead' 5; WRN *kutu* 'dead' 5; PIN *kutu* 'continually' (O'Grady 1990g) 4; NMA *kurru.rta* 'steady, calm' 3; YIN *kurru-* 'dead' 5; NGL *kutu* 'dead' 5; PLK *kutu* 'dead' 5; YDN, Ja prenasalized form, *kuntum* 'stinking, dead' 4; GNG *kurru.man* 'shade, shadow, image' 4; GOR *kurru.man* 'shade' 4; GID *kurru.pu* 'long ago' 3. For the semantics, see **nyujan, *rawa* and **yakum.*

K881 pPN **kUrru(n)* 'point(ed). NYA-W *kurru* 'quill of echidna' 4; NMA increted form with enlargement *kurr.p.i.ny* 'point of spear…; sharp' 3; NGL *kurru.ngka.rli* 'large grey-green sp. spinifex – very prickly….' 4; PAY *kurri.ya* 'quill of echidna' 3; JIW *kurr.p.i.ny* 'barb of spear' 3; JGY *kurri.na* 'echidna' 3; WOI *kurrun* 'elbow ("point") 3.

Residue: WLM *kurru* 'fire saw' 1.

K882 spPN **kUrta(y)* 'Negative'. NYA-W *kurta* 'incomplete, naked' 3; WLM *kurta.ma-nu* 'remove…; undo' 2; PIN *kurtu..rlu* 'half' or 'only a portion of…' 3; pK **kurta* 'not, no' 5; YAN enlarged form *kurta.rti* 'no, not'…5.

Residue: GYA-N *kuta* 'Question word' 2; JGY prenasalized form *kuntay* 'perhaps' 2, *kutaa.kutaa* 'always' 2.

K883 spPN **kuru-kuru* 'round' (cf pPN **kuruN* 'eye'); pNG **kuru.kuru* 'round' 4; KLY *GURU.GUI* 'round' 4.

K884 spPN **kUwal* 'language'. PIN *kuwa.rra.jarra* 'name for the Warburton Ranges dialect' 3; JIW *kuwa* 'language' 4; DYI *Kuwal* (pala) 'everyday language style; voice' 4; GOE *kual* 'noise' 2; GOR *kual.i-* 'talk' 4; YDN *kuwal 'name'.*

Some of K839-884 have countereparts in Fitzgerald (1997a). The former are in no sense intended to supplant the latter, but rather to be supplementary to them.

………………

Addenda to *k-

K885 pNY **kAya.rri-* 'swim'. NYA-W, NYU (IS). See OG files.

K886 spPN **kinka* 'sing, play'. WLM *yinpa* 'sing'??; WLP, PIN (*k- > y-),* WIR (**k-* > zero); GYA. See OG files.

K887 spPN **kiipa* 'separate', e.g., by winnowing or scraping; WLM (*k- > y-;* prenasalized), WLP (**k-* > *y-*), PIN, KLY, WMK (C_2 assimilated to C_1), JGY, YDN. See OG files.

K888 pEPN **kurra* 'dog', pP **kuta(.ka)* (> UMP *ku'a.ka,* MBA *do.g*); KAB (*-a* > *-i* ..sporadic shift). For the change of intervocalic **rr* to **t* in proto-Pamic, compare J40 **jarra(r, ny*). See OG files.

*LH-

To my knowledge, a laminal lateral has not hitherto been reconstructed for initial position in proto-Pama-Nyungan. This is now justified in view of the recent magnificent work of John Bradley on Yanyuwa, which makes it now possible to reconstruct **lh* in initial position in (sub)pPN. Apparently pPN **lh-* descends as *y-* in the majority of other Pama-Nyungan languages. It naturally follows that pPN **y-* can only be reconstructed as such in the event that, in a given cognate set, a YAN form in *y-* is represented. Otherwise, **Y-* (representing **lh,* **y-*) must be reconstructed for (sub)pPN.

An example of the above is provided by YUL *yapa.rn.ka-ngu* 'creep up on', PNK *YAPPA.RRI.TI* 'walk slowly, steal on', UMP *apaa-* 'creep up, sneak up', WMK *eep-an* 'creep up on..., NGI *yapa-r* 'slither', which lack a cognate in YAN. The initial of the protoform could thus be either **lh-* or *y-*. The reconstruction is therefore represented as **Yapa-*.

A pattern of regularity with respect to the development **lh-* > *y-* (as also diachronically in Hungarian) is seen in the following:

LH1 pPN **lhaarrku* 'copy, imitate, mimic; echo'. NYA-W *yaku.rr.ma-na* 'echo; try it out' (by haplology from **yarrku.rr.ma-na*?) 3; PIN *yarrka-rnu* 'copy; taste' 4; YAN *lharrku.wanjarra* 'copying, mimicking, imitating, pretending, mocking' 4; GID *yaarr* 'imitation, copy' 4.

Residue: WEM *ngarnga* 'to copy someone' 1, in which it is just conceivable that the several putative phonetic developments (four in all) can be satisfactorily accounted for.

LH2 pPN **lharum* [water-associated term]. WLP *yarli-rnu* 'wet him, soak him...of rain' 4; YAN *lhari* (Avd Speech) 'flood' 4; GYA *yaru* 'wet' 3; GID *yarruum* N 'swim' 3 (in which the development of pPN **r* to GID <*r*> *rr* (sic) is regular).

LH3 spPN **lhUkal* 'alive, green, raw, uncooked, immature, alone, one'. WLM *yuka* 'grass' (generic) 3; WLP *yuki.ri* 'green, alive ...of plants' [5]; PIN *yuki.ri* 'greenery, green' [5]; pNG **yika* 'one' (< "unpaired" < "immature e.g., of a human")

3; YAN prenasalized form *lhungku* 'alive' 3; KLY *IGIL* 'alive'; 'green, of a tree' 3; NYW prenasalized form *yungkul* 'one' 3.

Residue: GUP *duk.marama* 'heal, make better ("keep alive"?) 2; DJP *diku* 'unripe, raw' 2; YDN *tukir* 'alive' 3; WEM *tuka* 'move' (< "be alive"?) 2, all pointing to **t* as the initial consonant, rather.

LH4 spPN *lhUlu* 'prone, limp…as corpse'. WLP *yulu* 'limp, relaxed …of slain kangaroo' 3; PNK *YULLU-TU* 'knock on the head, kill' 3; YAN *lhulu.rrun.ngu* … 'prone position; sleeping position – also of human corpse' 3; WMK ol ADV 'drop down, recede; be reduced' 2; YDN *yul.mp.a.N, Ja* 'lie, sleep, live' 3.

Residue: WLM *yulu.rri.ny* 'Death Adder' 1 (< "inert [unless touched]" ??.)

LH5 spPN **lhUrra* 'play'. WLP *yurru.wanti-rnu* 'beget' 3; MRN *yurri-* 'play' 4; WRN *yirra-* 'play' 4; YAN *lhurra-ngka* 'at play; sexual activity; games' 3.

A single exception exists to the claim that pPN **lh-* regularly descends as *y-* in initial-retaining Pama-Nyungan languages.

LH6 spPN **lharnti-* 'to limp' 5; YUL *jarnti.ka-ngu* 'limp' 5; pK **jarnti-Y* 'limp' 5; GUP *djan̲'.tjan̲.dhu-n* 'toddle (baby*)* *4*; YAN *lharnti.yarra 'limping' 4.*

L-

The source for many of the following **l*-forms is Hendrie (1990). Additions originating with me were made during a period of low productivity. The resulting imbalance between the populations of **l*-forms and **r*-forms, below, is more apparent than real. (Hendrie was able to reconstruct 40 roots in **l*- and 37 in **r*- -- almost equal numbers).

L41 pNYY **laju* [a source of protein]. WLM-E *laju* 'bardy grub' 5; WLM *laji* 'bardy grub' 5; WLP l*aju* 'edible grub' 5; GUP *latji.n* 'mangrove worms' 3.

Residue: YDN prenasalized enlarged form *tanja.rr* 'sea urchin' 2.

L42 pPN **lAka* [rel to vegetable food]. WLM *laka.rr.nga-rnu* 'eat inside of tree or wood – e.g., termites' 3 (emphasis mine – GNOG) = WLM-N prenasalized form *langki.rr.nga-rnu* 2; PIN *laka.rr.pa.ra* 'ant bed' 3; GUP *laka* 'lily tendrils y' 3; GIP *lak* 'food' 3.

Residue: G-YA *takwuy* 'hungry' 2; YDN *taku.rr.pa* 'Ficus congesta …' 3.

L43 pEPN **Laakal* 'wing'. WOI *laak* 'cloud' 3; LAJ *laaki* 'cloud…/thunder' 3.

Residue: WLM *raka.rra* …first light of day' (loan from WD?) 2; PIN *raka.rra* 'moonlight, predawn, post-sunset light' 2; JGY prenasalized form *tangkal* 'wing' 5; YDN prenasalized form *tangkal* 'wing of bird, fin of fish' 5; for other evidence of

*WING > 'cloud', see **marran*. If the case for the cognation of the PIN form can be strengthened, the reconstruction would be revised to **raakal.*

L44 pPN **lan(t)a* 'rib'. PIN *lanti.ly.pa* 'rib area meat cut; side' 4; ADN *ini.nya* 'rib' 3; KAU *TINNI.NYA* 'rib' 3; PNK *INNI.NYE* 'rib' 3; GUP *lana.ra* 'chips of wood that fly…' 3; MAN *tana.rr* 'ribs' 4, *tanta.rr* 'chest 3; GOR *tente* 'chest' 3; GID *tana.rr* 'rib' 4; WDI-SH *leni.ngi* 'rib' 4; WOI *tarni.n* 'rib' 3; WAT *lirni.n* 'rib' 4; MDI *larni.ng-(ku)* '(his) rib' 4.

Residue: WLM putatively increted form *lin.p.i* 'shoulder blade' 2.

L45 pPN **laapa* 'peeling, flaking, open, having hole(s)'. PNK *YAPPA* 'hole' 3; GUP *lap.thu-n* 'open, come apart' 3; DIY *dapa* 'sore, wound ("opening") 3; UMP *aapa* 'peel off …of skin' 4; WMK *ap-an* 'peel off ti-tree bark'…4; BAA *thapa* open 3.

Residue: Forms with **p* idiosyncratically shifted to *k* in NYA-W *laka* 'open…as mouth' 4; WLP *laka.rn.pa.ri* 'flaked, peeling… as of bark, dried mud' 4; YUL *laka.rn.pu-ngu* Vtrans. 'open' 4; A parallel shift of **p* to *k* is seen in reflexes of *$rApa_1$ in NYA and YUL.

L46 spPN **Lara* 'skin'. WLM *lara.k.pa-nu* 'peel off, tear off' 3; pCK **tarla* 'skin' 3.

Residue: YDN prenasalized form *tanta-R* 'rub down, rub off, wipe off' 3.

L47 pPN **larka* 'camp', place'. PIN *laka,rr.laka.rr-pa* 'very hard ground' 3; WLM *laka.rra* 'together with' (< "encamped together"?) 2; KLY *LAG(A), lag* 'dwelling place' 3 (not in MIR); YIM *taka-l* 'sit down, stay' 2; WIM *lar* 'camp' 4.

Residue: LAJ *lang(i)* 'camp' 4; WAD-P *layngi* 'camp' 4 (with medial nasal gradation). Hendrie 1990:54-55.

L48 pPN **larlin* 'white'. NYA-W *larli* 'white; white of egg' 5; WRN *larli* 'white' 5; ANT *lirli.rl* 'white' 4; GID *talaan* 'white' 4; WEM *lil* 'white resin exuded by gum trees', "manna" 3.

Residue: WLP *yarlti.ri* 'white' 2; YY *larri* 'white; clean, clear' 1; YOR *lili.ma* 'bone' (< "white", "bleached"?) 1.

L49 pPN **lArrkV(l)* 'woman'. MBA *yarrgUl* 'woman' 3; WEM *lerrk* 'woman, female' 3.

Residue: GUP prenasalized form *larrngga.y* 'sun, time, watch' (< 'woman') 3; YDN prenasalized form *tarrngki.tarrngki* 'old woman' 3.

L50 spPN **Layi* 'dry'. WLP *layi.layi* '…dry leaves on tree' 4; YIM-C *tayi.ngkal* 'dry' 4.

L51 pPN **Layul* 'man, male'. WLM *layi* 'one' (compare German Mann, man) 3; JGY *tayal* 'man, male' 3; LAJ *layu.kil* 'husband' 4; MDI *layu.rr* 'woman' 3; WOI *layi.kurn* 'male animal' 4. For the antonymic semantic development in MDI, compare the evolution of spPN *_kartu_ 'man' into KAY _artwe.ye_ 'man', NYA-W _kartu.ngu_ 'female animal', KAU _KARTO_ 'wife', MRD _kartu_ 'thou'.

L52 spPN *_lija_ 'dry'; 'dry and warm'. NRA _WITCHA_ 'dry' 4; GUP _litha-n_ 'get dry, get warm' 4; pCK *_tiji_ 'sun' ("The Warm One") 4; *_tiji-pa-_ 'dry in the sun' 4; UMP _iji-_ 'get dry; bask – as crocodile' 4.

Residue: WLP prenasalized form _linji_ 'dry, desiccated – of plant' 4; NYU-N prenasalized form _INJA.R_ 'dry, parched up' 3; DIY _wiji-_ 'dry in the sun' 2. See Hendrie 1990:58.

L53 *_liika-_ 'send'. RIT _lika-_ 'to rain' (<" [rain] to be sent"?) 3; pCK *_tika-_ 'to name' (< "to give [a name]") 4; WMK _thee'-an_ 'throw, give' 3 [_namp thee'-an_ 'to name']; YIM _tiika-l_ 'send' 4; BAA _thiika-_ 'pour out, stream out ...e.g., blood' ["emanate"] 3.

Residue: GYA _tika.rr_ 'magic to make people sick' 2; WOI _liik_ 'headband' 1.

L54 pPN *_Lim(p)u_ 'mark'. WLM _limi_ 'scar, wound; hole in bottom of vessel' 3; MDI _limpu_ '(his) track, mark' 3.

L55 pPN *_Lipi_ 'spike'. WLM-N _lipi.l_ 'Click Beetle' [has a spike?] 3; YDN _tipi.rri_ 'fish hook cut from ...shell' 4; MAN _tipi.li_ 'penis' 3; WEM _lip_ 'spike' 4.

L56 pPN *_lirrka_$_1$ [a reptile]. GUP _lirrga_ 'Bluetongue lizard' 3; WEM _lirrk_ 'Death Adder' 3.

Residue: WRN _lirrka_ 'name' 2 (alternatively an increted reflex of *_rirrang_ 'tooth'?). For the semantics, compare *_manyjal_ and *_mAnyjal_.

L57 pPN *_Lirrka_$_2$ 'quick'. WLM _lirrki.n_ 'alert, wide awake' 4; WMK _erka.m_ 'quickly, straight away' 4; MDI _lirrka_ 'quick, lirrki 'quick!' 4.

L58 pPN *_Lirtu_ 'hair of the head'. NYA-W _tirtu.tirtu_ (by assimilation from pre-NYA *_lirtu.lirtu_ ?) ~ _tartu.tartu_ 'curly ... of hair' 3; GIP _lirt_ 'hair' 3.

L59 pNYY *_Luka_$_1$_-_ 'to name'. WLM _luk.nya-ngu_ 'treat as Mother-in-law ...' 3; JIW _juka.ri_ 'name replacement' ...("a re-naming"?) 3.

L60 spPN *_lUka_$_2$_-_ 'get, catch, take, gather'. PNK _YUKU.PA-TA_ 'gather, collect' 4; pCK *_tuka-_ 'take out' 4; GUP _luk.thu-n_ 'come together'; YDN _tuka-L._ 'get, catch' 4.

Residue: PIN _yuku-rnu_ 'pluck out of the ground' 3, with unexpected _y-_ for *_l-_

L61 pPN **lukan* soft and wet ground, mud, water’. WLM *luka* ‘mud’ 5; PIN *luka* ‘mud 5; KAU *TOKA* ‘mud’ 5; PNK *YOKA* ‘mud’ 5 (all with regularly corresponding initials)

Residue: WMK prenasalized form *thungk* [in *ngak thungk* ‘water in swellings on side of ti-tree 3] – borrowed in YY *kawn-thungk* ‘water from goiter on forest ti-tree’; YIM prenasalized form *tungkan* ‘water-spirit…’ 3; WEM *tuk* ‘bull-frog’ 1, WOI *tuki.l-tuki.l* ‘soft’ 2, both with unexpected *t-* for **l-*.

L62 spPN **lUku* ‘bent’. NYA-W *luku* ‘metatarsis’ 4; WLM *luku* ‘ankle’ 4; WLP *luku* ‘heel’ 5; PIN *luku* ‘outside ankle bone’ 4; NYL *yuku* ‘heel’ 5; pK **juka.rra* ‘foot’ 3; GUP *luku* ‘foot, footprint, wheel’ 4; UMP *thuki-* ‘to track’ 3; GYA *tuku* ‘bent’ 3.

L63 pPN **Lungka-* ‘cry’. MDB *lungka-* ‘cry’ 5; pCK **yungki-* ‘cry’ 4; pP **rungka-* ‘cry’ (Hale 1976) 5; URA-AT *rungka-* ‘cry’ 5; URA-AN *yungka-* ‘cry’ 5; UMP *ungka-ji* ‘cry’ 5; DYI *rungka.rra-y* ‘cry, weep’ 4; BNJ *tung(k)-a* ‘cry’ 4; WAA *tungka-* ‘cry’ 5; WRJ *yungkaa-y* ‘cry’ 5. As one with **runga-* ‘cry’?

L64 pPN **lUngku(l)* ‘container’. WLM *lungku.rn* ‘Acacia sp., bears pods with edible seeds’ 3 (my emphasis, O’G); GUP *lung’.thu-n* ‘gather’ 3; YDN *tungkul* ‘stone fish trap’ 3; WAD-P *yungku.pi* ‘canoe’ 4; LAJ *lungu.wi* (sic) ‘canoe’ 4.

L65 pPN **Lurra(l)* ‘hungry’. WLM *lurru* ‘thirst’ 3; IOR *YURU* ‘hungry’ 3.

Residue: GYA increted form *turr.p.al* ‘greedy person’ 3.

L66 pPN **Lurrka* ‘head cold’. WLP *yurrka.ly.pa* ‘nasal mucus’; ‘head cold’ (with *y-* by dissimilation?) 3; PNK *YURKU.RO* ‘mucus of the nose, cold’ 4 (where **L- > y-* by regular sound change); WOI *lurrk.lurrk* ‘feel cold’ 4.

L67 pEPN *Lurtu ‘tree, wood’. YIM prenasalized form with enlargement tuntu.rr ‘sp. white gumtree’ 3; GYA tutu.y ‘bush, weeds, tangled growth 3; WNN lurt ‘wood’ 3.

Residue: Conceivable metathesized form with enlargement in WLM turlu.rlu ‘game played with wooden ball’ 1.

L68 spPN **Luru* ‘liquid’. JIW *yuru* ‘milk’ 3; JGY *turu* ‘tears’ 5; YDN *turu ~ tuwu* ‘tears’ 5.

Residue: PIN *yuru* ‘surface water’ (unexpected reflex of **L-*) 3.

Addenda to *l-

L69 spPN *lAku(l)* ‘also, again’. WLM , KAU (*l- > T-*), NAN (prenasalized form, **l- > y-),* KLY *lak* ‘again’ (borrowed in MIR as *LAKO, KO* 'again'), WMK *thak* 'etcetera…', (*l- > th-), YDN *takul* 'three' (*l- > t-), MUR (*l- > th-). See OG files.

L70 pPN *lalka* 'greedy'. GUP, GID (*l- > y-). Hendrie 1990:55.

L71 pPN *lalkay 'non-pliable; dry …of vegetation'. NYA *lalka* 'dry, dead. withered .. of plant' 5; WLM *lalka* 'dried out, crisp' 5; WLP *lalka* 'of entity, being which ceases to be pliable …solid, hardened …frozen solid … dried up' 5; NAN *catka* (by regular sound changes) 'burned, dried out' (Blevins 1999: 304) 5; NMA *yalka* 'dry'4; PIT *yarlka* 'dry' 3; GID *talkay-ngaan* 'dry (arboreal)' 4. Hendrie 1990:55).

L72 spPN *lama [earth-related]. PIN, UMP. Hendrie 1990:55.

L73 pPN *lampa 'long'. GUP, BNJ (*l- > j-). Hendrie 1990:56.

L74 spPN *lAnga* 'ear'. WRN (> 'ground'; OG 1979:122-124), WLP, YDN (Ja) (*l- > t-, + *-rra* enlargement). See OG files.

L75 pNY *lanti 'winnowing / yandying dish, hollow log (of whitegum, from which dish is made' ??). NYA, pNG (*l- > y-) OG 1966:74.

L76 pPN *lapa 'sp. bird'. WLP, GUP, GID (*l- > t-), Hendrie 1990:74.

L77 spPN *lApV- 'cut'. NYA-W, KLY. Hendrie 1990:56.

L78 pNY *larra$_1$ 'shield'. NYA, pNG (*l- > y-) OG 1966:74.

L79 pNYY *larra$_2$ 'split, crack, splinter'. NYA, WLP, PIN, KAU (*l- > T-); possibly GUP. Hendrie 1990:57.

L80 pPN *larrjam 'sp. snake'. NYA-S, PIN, GID, WAA (*l- > w-). Hendrie 1990:57.

L81 pPN *laarrum 'camp'. PIN, GUP (> 'falling star'), GID (> 'meteor', *l- > y-). Hendrie 1990:57.

L82 pNYY *lawu* 'hole, hollow' . PIN, KAU (l > T-), PAY (> 'windbreak'', *l- > y-). Hendrie 1990:58.

L83 spPN *lawu- 'bite'. NYA-W (> 'biter' > 'black snake' .. cf UMP *irra* 'snake' < pA *rirrang 'tooth'), GUP, YIM (> 'shark, sp.' , *l- > y-). Hendrie 1990:58.

L84 pPM _lAwV-_ 'throw (away), reject, disbelieve'. YDN (_*l- > t-),_ M-KU, NGW _(*l > y-)._ See OG files.

L85 pNYY _*lika(rra)_ 'resin, bark containing resin'. NYA-S, WLP, PIN, GUP. Hendrie 1990:58. This root is quite possibly part and parcel of pPN _*liika-_ 'send', in the sense that 'be sent, emanate' (cf BAA _thiika-)_ may refer to resin exuding from bark, etc.

L86 pDN _*lilyirr_ 'noise'. NYA-W, PIN. Hendrie 1990:59.

L87 pPN _*lingkan_ 'anger'. NYA-W, GID (_*l- > y-_). Hendrie 1990:59.

L88 pDN _*linma_ 'sp. snake'. NYA-S, PIN. Hendrie 1990:59.

L89 spPN _*Linpa_ 'sour, bitter'. WLP (_linpa-jurrku-wangu_ '?? –same-PRIVATIVE' = 'good-tasting, sweet'), YIM-C (_yinpa_ 'sour, bitter' …_larikin_ …'woman hungry'). Hendrie 1990:59.

L90 pPN _*li(r)lil_ 'noise'. PIN, GUP, GID (_*l- > t-),_ Hendrie 1990:59.

L91 pNYY _*lirr_ 'dried out, uncovered'. NYA, WLP, PIN, GUP; possibly YDN (_*l- > t-_). Hendrie 1990:60.

L92 spPN _*lirra_ 'Black Cockatoo'. NYA (_lirra.pirtan_); PAY _yirra.parlu_ 'white cockatoo'_;_ _thirra.nti_ 'Red-tailed Black Cockatoo'); YAN (_a-lirra.ka_), NYA _pirtan_ is 'limestone' and pM _*parlu_ 'stone'. See OG files.

L93 spPN _*lirrpa_ [original meaning uncertain]. NYA-S, PIN, KAU (_*l- > T-_), YIM (_*l- > t-)._ Hendrie 1990:60.

L94 pDN _*lirru_ 'sp. snake'. NYA-S, PIN. Hendrie 1990:60.

L95 pDN _*liwu.rn_ 'kingfisher'. NYA, WLP. Hendrie 1990:61.

L96 [Add to L61: PAY (_*l- > y-)._ Hendrie 1990:61.

L97 spPN _*luma-_ 'wash, splash'. NYA-S, GUP, UMP (_*l-_ > zero). Hendrie 1990:62.

L98 pEPN _*luma-_ 'seek, find'. KLY, W-MK (_*l-_ > zero, _*-m- > w_). See OG files.

L99 spPN _*lum(p)a(l)_ 'Blue-tongued Lizard'. NYA-S, WLP, YDN (_*l- > th-_). See Hendrie 1990:62, and see OG files.

L100 pA _*lumpu_ 'cave, cavity'. NYA, NYU-N (_*l- > D-_), pNG

(**l*- > *th-*), YIM (**l*- > *t-*). Hendrie 1990:62-63. The spPN root **lumpu* can in turn be referred back to proto-Australian **lumpu* by virtue of Murrinh-Patha (MU-P) *lumpu* 'buttocks'.

L101 pNYY **lungka* 'Blue-tongued Lizard'. NYA, WLM, WLP, PIN, PAY (**l*- > *y-),* JIW (**l*- > *y-*). Hendrie 1990:63.

In view of the occasional shifts of labials to velars, as in Desert Nyungic reflexes of the rhyming pair **laapa* and **rApa*$_1$, I suspect that L101 is ultimately to be subsumed within Pama-Nyungan under L99.

The acid test of this assumption would lie in determining conclusively that reflexes of **lungka* are entirely absent from eastern Pama-Nyungan languages. This would confirm their status as offshoots of a local Western innovation.

L102 spPN **lunta* 'burnt'. NYA, PIN, UMP (**l*- > zero). Hendrie 1990:63.

L103 spPN **lupa*- 'thick, wide'. NYA-W, KAU (**l*- > *T-*, 'all, the whole...'), YIM (**l*- > *th-*, 'narrow'). Hendrie 1990:63.

L104 pEPN **lUpa*- 'shake'. KLY, URA (*iwa*...), JGY (*tuwa.rri.l*). Possibly GUP *lup.thu-n* 'bathe, wash...' [and POTENTIALLY 'shake itself – as an animal' ??]. See OG files.

L105 pNYY **lurlu* 'shaking out, shedding'. WLP, GUP. Hendrie 1990:61-62.

L106 pNYY **lurr* 'flowing, running (liquid). NYA-S, GUP. Hendrie 1990:63.

L107 pPN **luurra*- 'split'. GUP, BNJ (**l*- > *j-).* Hendrie 1990:63-64.

L108 pPN **lurr(i)* [relative to cooking]. NYA-W, PIN, GUP (**u* > *i*), GID (*jirri*). Hendrie 1990:60.

L109 pDN **lutu* [a biting insect]. NYA-W, WLP. Hendrie 1990:64.

Using a similar line of reasoning to that employed in the estimation of the expectable population of pPN **j*-forms in a thoroughgoing, Fitzgerald-type study, and taking into consideration the further evidence of Pintupi, I find that (sub)pPN would have about seventy **l*-forms, given such a study.

The present work on initial **l*- embraces 69 reconstructions, and could therefore approach exhaustiveness (but see my comments on **r*-, below).

*R-

What follows is a presentation, building on the work of Hendrie (1990), of (sub)pPN reconstructions in **r*- which I have been able to assemble. The necessary map, language name abbreviations and References are to be found in O'Grady in Oceanic Linguistics' December 1998 issue. The assemblage is probably more notable for what it misses than for what it includes (a large number of Pama-Nyungan and other dictionaries remain to be systematically searched for further cognates). I therefore make no claims as to exhaustiveness, though I have set my sights in this direction in view of the extraordinarily fascinating picture of the descent of initial **r* (and **l*) in Pama-Nyungan that continues to emerge. I urge my Australianist colleagues, wherever they be, to fill in any gaps which come to their attention.

Reflexes which appear to be genuine but which do not follow the regular lines of descent are subsumed under 'Residue'. I strongly believe that not only ironclad cognates should appear in an Etymological Dictionary (of Pama-Nyungan, for instance), but also putative cognates which are very plausible, plausible, possible or even, on occasion, only remotely conceivable.

Colleagues who peruse the lastmentioned may see an obvious connnection, as between Nyangumarta *yari* 'whale', Yidiny (ngamun) *yari* 'nipple' and Ngarla *yari* 'white ochre' – of which I have the merest glimmering. But could not KAU (Kaurna) *KONDO.LLI* and YAR (Yaraldi) *KONDA.RLE* 'whale', as against KAU *KUNDO* 'chest, breast' and PAY (Payungu) *KUNDU, kurntu* 'breast, milk' give a further nudge towards acceptance of a hypothesis that the naming of whales in Pama-Nyungan languages in some cases reflected their mammary attributes? (A further connection with Ngarla *yari* may eventually be established through the fact that some species of whale have conspicuous white areas on their bodies. Thus we now seek independent etyma which would corroborate this)

This philosophy of seeking out less apparent etymological connections as well as obvious ones is in line with the practices followed in the Kluge Etymologisches Wörterbuch der deutschen Sprache, for example. I give plausibility ratings after each putative reflex, following Meillet (1967:130). These range from '0' (zero probability of cognation) to '5' (ironclad).

R1 pA **raa-* 'pierce, spear, make an opening; build'. WLM *la-nu* 'spear' 5; KAU *ta.ie-ndi* (with root putatively */tha.yi-/*) 'raise, erect, build' 3; NGJ (Ngajunma) *RA-N* 'to spear (distant)' 5; NYU-N *DTA-N* 'pierce, penetrate, make an opening', *tha-n* 'stab, pierce, spear' 5; pNG **tha-(L-)* 'hit' 4 (> NMA *tha.lku-ku* 'hit, strike; strike .. of lightning' 3; YIN *tha-* 'stuck in (to); stuck under' 3, *tha.ni* 'chop' 3; NGL *ja-n* 'do it' 3); GUP *ra.rr.'* Interj PL 'to spear' 3; YAN *ra.ma-ntharra* 'hitting, building' 3; pCK **ta.ka-* 'pierce' 2 (more likely cognate with GUP *dak.thu-n* 'cut'); KLY *RA.DA* 'sharpened stick used for spearing fish' 3; YIM *taa.ma-l* 'spear...' 4 (cf *nhaa.maa* 'see...' from pPN **nyaa-NG*); GYA *ta.ma-l* 'spear' 4; NYW *yoo-N* 'throw' 2; GID *taa.ni* 'open up...' 4; pCNSW **thaa.rr* 'copulate' 4 (unless this descends from pPN **ja-* 'eat' – see O'Grady 1998:218).

Tangkic cognates are YUK *rlaa.ja-* 'spear, sew' 4 and LRD *la-tha* 'spear, pierce...' 4. Nunggbuyu has *=ra-* 'to spear; produce; build' 5.

The reflexes of initial **r* seen in the above are in almost all cases supported by further cognate sets. See below.

Residue: YAR *TO.LKU-N* 'poking' 1, *LA.KKI-N* 'throwing a spear' 3. The latter form is the better candidate for cognation, and its morphology is corroborated by YAR *NA.KKI-N* 'seeing', from monosyllabic pPN **nyaa-NG*. (The *–kki-* accretions probably reflect pPN **-ku* 'PURPOSIVE', as in Ngarluma *nha.ku-ku* 'see'). But much more work is needed before a possible split of pPN initial **r-* into */r/* and */l/* in YAR can be fully documented.

There is the germ of a suspicion in my mind that, under conditions as yet unknown, pPN **r-* descends as *p-* in a number of languages of South Australia. (See, for example, the putative reflex of **rarrku(l),* below, in ARB, pKR, and BAA. Thus I include here WIR, MRN *pa.rlta-* 'to spear' 1, though this root may well eventually turn out to be diachronically monomorphemic.

R2 pPN ***raju*** 'clear, bare, naked'. Hendrie **raju*. PIN *raaja.l.ka-ngu* 'speedily dry up.. of rain clouds' ("clear up") 4; GUP *radja.l* ~ *raya.l'* 'clear sand …no shells y' 4; UMP *aja* 'shallow' 3; antonymic development in GYA *taja.li* 'deep water' 2; YDN *taju-R* Vtrans. 'spread out (e.g., blanket, grass to lie on)' ("form clear area") 3; WEM *laju.k* 'naked' 3.

R3 pPN ***rAkur*** 'empty; thin, potentially dead'.. PIN *raku.rl-pa* 'empty; thin, fragile' 4; GUP, DJP *raku.ny* 'dead' 3; RIT *raku.ny-dhi* 'die' 3; GYA *takwuy* 'hungry' 4; YDN *takur.pa.rra* 'bony bream' 2.

Residue: GID *yakiirr* 'lean, poor (of season)' 3; The development whereby **u* at V_2 descends as *ii* in GID *yakiirr* is irregular. GID appears to reflect ancestral **r-* as *y-* in a minority of cases (Hendrie 1990:31)

R4 spPN ***rAl*** 'hair of the head'. MNG-N, WLM *ral* 'hair of the head' 4; KLY *IAL, yal-abup* 'hair of head' 4.

I do not yet know whether initial **r* split into *r- (rr-)* and *y-* in KLY under certain conditions, or what these conditions are. For present purposes, I am refraining from placing instances of the **r-* > *y-* development, common to many PN languages, in 'Residue'.

R5 pPN ***raali*** [a LOCATIVE term]. PDN **rali.nyja* 'north' in NYA-W *yali.nyji* ~ *yali.nyja* 'north' (ABLATIVE form: *yali.nyja-ngu)* 5; NYA-S *yali.nyja* 'north' 5; MNG-N *rali.nyja* 'north' 5; PIN *yali.nyja.rra* 'north' 4; ANT *ali.nyja.rra* 'north' 4; GUP *rali* 'movement towards speaker' 3; GUM *taali* 'near' 3.

For the implied semantic association, compare KAU *WONGGA* (taken to represent */wangka/*) 'west' with NYA *wangka* 'near', from pDN **wangka.*

R6 spPN ***ralpu*** 'itchy, frisky'. Hendrie **ralpa.* NYA-W *ralpu.rr* 'itchiness' 4; WLM *ralpu.rr.ma-rnu* 'have goose pimples' 3; YUL *ralpu.rr* 'ticklish' 4, *ralpu.rr-arri-nyin* 'itch' 4; JIW *thalpa* 'vagina' 2; GUP *ralpa.tja* 'active, energetic, frisky' 3; YAR-W, RM *relbu.lu-n* 'suffering' 2.

Residue: Yet to be confirmed is the development **r-* > *p-* in some languages of South Australia. In this instance we have PNK *PALBA.NNI-TI* 'be ticklish, itchy'

3, with which compare **rArrkul* > proto-Karnic **parrku.lu* 'two' > DIY *parrku.lu* 'three'.

In YIM, *talmpa* is a 'sp. tree with red fruit which causes an often fatal allergic reaction…' 3. I hypothesize that in pre-YIM this form would have been **talpa*, and that prenasalization occurred at some point in the evolution of the modern form. For more on this phenomenon, see O'Grady 1990g, O'Grady and Fitzgerald 1995, and Fitzgerald 1997a.

R7 pPN **ralyang* 'llightweight'. Hendrie **ralyang*. NYA-S *ralya* 'light, not heavy; a bit sad' 4; PIN *ralya* 'without care; unconcerned' 4 (with which compare the semantics of English lighthearted = carefree); PNK *TALLU.RU* (from pre-PNK **yalha.ru* ?) 'light, not heavy' 3.

Residue: YIM-C *talil* 'lightweight' 2, with its intervocalic *l,* is problematic. The same is the case for YY *lol.t* 'light, buoyant…' 2. A better case can be made for the cognation of GID *tal.ng.ang* 'calm, peaceful, motionless' 3, which putatively underwent the developments **ralyang* > **raly.k.ang* (incretion) > **ral.k.ang* (Fitzgerald 1997b) > **tal.k.ang* (Hendrie 1990) > *tal.ng,ang* (Assimilation).

It is possible that the root **ralyang* can ultimately be shown to be one and the same as **rAlyu* (below) and as pNG **walha,rn* 'leaf' (O'Grady 1966).

R8 spPN **rAlyu* 'lung(s), "lights"'. Hendrie **ralyu.* NYA-W *ralyu.p* 'whoosh: onomatopoetic interjection referring to the belching forth of flames (< "breathing"?) 2; WLM , YUL *ralyu.ralyu* 'lungs' 5, 5; WLP *yalya.pa.kira (kira)* 'lungs ' 3; PIN *ralyu.ralyu* 'a small internal organ' 3; WMK *ath.ant* 'swim bladder of fish' (also called 'air bladder') 3. It is quite possible that **rAlyu* can be ultimately related to **ralyang* and to **walya* (> pNG **walha.rn*).

R9 pPN **rAma* 'one, alone'. NGJ *REMME.LL*, putatively */rama.ly/* 'alone [lonely], on one's own' 4; YIN *yama.rti* 'on one's own' 4; YAR *YAMMA.LAI.TYE* 'one' 4.

R10 spPN **rAma(ny)* 'having impaired senses'. Hendrie **ramang*. WLP *rama* 'having impaired senses…dizzy, drunk' 4 (borrowed from Pintupi?); PIN *rama* 'angry or emotionally upset-of disobedient children' 4; PAY *thamany* 'tired' 3; MYP *wama* 'mad' 3; YDN *tama.rri* 'doing silly things…' 3; BGU *wamany* 'sulky (of child)' 4. More study is needed concerning the implied sound change of **r- to w-* in MYP and BGU.

Residue: GID *marrang* 'tired, enervated' 2 has possibly undergone metathesis (with **r* > [*-rr-*] by regular sound change), but in this case the *–ng* requires explanation. It is conceivable that the name of the Sydney suburb *Tama.rama* 1 is a reflex of **rAma(ny),* with obligatory shift of **r-* to *t-* (or *th-* ?) in the first half of the reduplication.

R11 spPN **rAm(p)an* 'light in weight, small'. WLM *lampa.rn* 'small' 3; WLM-*E* *rampa.li* 'light, weightless; bread…' 4; WLP *rampa.ku, rampa.rli* 'light, weightless' 4; PIN *rampa.ku* 'empty, thin, fragile' 3; MLK *yampa* 'baby' 4; ARR-N *ampe* 'baby' 4; YDN *taman* 'child…' 4.

R12 pDN **rampa.nu* 'male Ego and his sister's child'. NYA-W *rampa.nu* 'male ego and his sister's child' *5; WLP* *lampa.nu* 'uncle-nephew pair, uncle-niece pair' 5.

R13 spPN **rAmpu* 'short'. NGJ *RAMBI.RAMBI* 'short (size), thick (plump)' 3; MBA *thampu* 'short' 3; The implied correspondences here need to be confirmed.

R14 pDN **ranga* 'breathing'. NYA-W *ranga.ranga.pi-ni* 'pant …as a dog' 3; WLM *rang.ma-rnu ~ rang.a-rnu* 'breathe' 3.

Concerning the truncation in WLM, see O'Grady and Fitzgerald (1995). It is possible that **ranga* is a metathesis of **ngara(ny)* and that it was influenced in this direction by a reflex of **runga(-)*.

R15 pPN **rAnga-* 'chase, chase after, gather'. NYA-W *yanga-rna* 'unearth; pick (fruit)' 3; NYA-L *yanga-na* 'pick up, collect …shells, etc.' 3; NAN metathesized form *ngara-* 'chase' 3; PAN *yanga-lku* 'chase, follow' 5; JIW *yanga-ru* 'follow; chase' 5; pWK **tanga-* 'chase away' 3; GUM metathesized form *ngara.mara-* 'chase' 3.

NYA shows unexpected *y-* reflecting **r-*, but note NYA *rirra ~ yirra* 'tooth', from **rirrang*. Concerning the metathesis, it is conceivable that NAN and GUM, on opposite coasts of Australia, preserve the old form, and that metathesis occurred in the common ancestor of Nyungo-Yuulngic and Karnic, rather. More study is needed.

R16 pPN **rAngi(n)* 'temple; sloping'. WLP *lingi.rr.ji.ngi.rr.ji* 'temple' 4; GUP *rangi* 'beach, sand, sandbar' ("sloping") 3; YDN *yangin* 'temple, side of eye' 4; YAR *RENG.BARI* 'steep' ("having a slope"?) 3. For the semantics, compare pPN **ngalya*, e.g., in its WLP reflexes *ngalya* 'forehead, brow' and *ngalya.rr.pa* 'sandhill, sand ridge'.

R17 pPN **rangkal* 'dawn, dim light'. Hendrie **raka ~ rangka*. NYA-S *rangka.rr* 'blurry' 3; NYA-L *rangka.rr* 'short-sighted' 3; GRJ *rangka.rr* 'dawn' 5; WLP *rangka.rr.pa* 'dawn(ing), daybreak…' 5; KAU *TANGKUI.NYA* 'dream' 1; YAN *rangka.rr.ku* 'first dugong to come on to the sea grass beds' 3 (metaphorically from "dawn"?)' 3; YIM *tangkay* 'nighttime, at night' 3; GID *tangkaal-pu* 'dawn, before sunrse' 4.

Residue: PIN *raka.rra* 'moonlight, pre-dawn…' 2 shows an unaccountable absence of a reflex of **-ng-*. The regular descent of **-ngk-* in PIN is seen, for example, in pPN- **wAlngka* > PIN *wangka-ngu* 'talk…' or in spPN- **jUngkun* 'pinnacle, hill' > PIN *jungku.pu.nya* 'Tarn of Auber, a hill west of Papunya' (and YDN *jungkun* 'pinnacle, small hill').

R18 pNY _*rangki_ 'fungus'. Hendrie _*rangki._ NYA-W _rangki.rangki_ 'toadstool' 3; KAU _TANGKA.II.RA_ 'sp. fungus' 3.

R19 spPN _*rAngku_ 'breath, lungs'. NYA-W _rangku.rr-karra_ 'sound of surf' (< "breathing ...of the sea"?) 3; MNG-N _rangku-_ 'breathe' 4; WLM-E _rangku_ 'lungs' 4; WMK _ngangk_ 'heart and stomach area; soul' 3 exhibits assimilation (and note _ngangk-an thee'-an_ 'breathe', where _thee'-an_ is 'throw, give', from pPN _*raapa-l,_ below); GYA _ngangkun_ 'hiccough' 2; YDN _tangkay_ 'rapids' 2 possibly evolved semantically in a manner similar to the NYA-W form.

Residue: WRG _jangku.mpi_ 'fan' 2.

R20 pNY _*ranku_ 'sound made by Australian Bustard or emu'. NYA-W _ranku.rr_ 'sound made by Australian Bustard when alarmed' 4; NYA _ranku.rr.ji_ 'Australian Bustard' 4; pNG _*janku.rna_ 'emu' 3; YIN _yanka.rr_ 'sound, noise' 2.

Residue: WLP _ranku ~ ranki_ 'big and round, bulbous' 1. KBR _pankel_ 'Australian Bustard, native turkey' 2 points possibly to a _*r- > p-_ shift, with suspected parallel examples in PNK and Karnic. The possible conditioning factor in these putative developments continues to elude me.

R21 spPN _*rAnyja_ 'wrinkle(d)'. Hendrie _*ranyja._ NYA-W,S _ranyji_ 'old person' 5, 5; NYA-L _ranyji_ 'old woman' 4; WLM _ranyja_ 'Sandpaper Fly' 1; GUP _ranhdha.k_ 'dry' ("wizened"?) 3; KLY _raazi_ 'wrinkle...' 4; KUN _adnji.y_ 'old man' 4; YAR _RANDI_ 'widower' 3.

Residue: MRN _panyja.la_ 'old (man)' 2 (*r- > p- ?); WMK _wanch_ 'woman' 2 (_*r- > w-_ ?). Was pPN _*r_ [+ labial]?

R22 spPN _*rapa_ 'fork of tree'. WLM _lapa.nti-nyu_ 'join together with others' 3; NYU-N _DABBA, thapa_ 'knife' 1; KLY _RAB_ mast' (made with a forked branch?) 3; pP _*japa_ 'fork of tree' 5; UMP _thapa,_ WMK _thap_ 'fork of tree' 5, 5; YY _thap_ 'nest; bower of bower-bird' 4 (support for the cognation of this form comes from reflexes of _*mangka,_ which means "nest"in most daughter languages; but _MANG_ (albeit in the stead of the expected _*maaga_) in KLY is "fork"); JGY _tapa_ "bower arm; branch"(Patz) 4, _tapa.tapa_ "fork of tree"(Hale) 4; WRG _rapa_ 'forked stick, fork of tree' 5.

R23 spPN *rApa$_1$ 'bold, having the potential to run off with member of the opposite sex'. PIN rapa 'confident, unafraid, bold' 4, rapa.nyju 'very confident or defiant' 3; WMK appe.nch-an 'run away, get lost...' 3; YDN tapa 'running off with someone of the opposite sex...' 4.

Residue: NYA-W _raka_ 'showing off, "flashy"' 3; NYA-L _raka-kata_ 'proud, conceited rough' 3; YUL _raka.rri.nyin(pa)_ 'show off' 3 (with _*p > k_ development unexplained; but see the reflexes of _*laapa_ with _-k-_ in NYA and WLP).

R24 spPN _*rApa_$_2$ 'swollen'. NYA-W _rapu.rapu_ 'swollen; a boil' 4, _rapu.rapu karnti-nyi_ 'break out in boils or sores' 4, _rapa.rr.ku_ 'inflated, bloated' 3;

NYA-S *rapu.rapu* 'bruise' 5; GRJ, MNG-N *rapu.rapu* 'swollen' 4, 4; WLP *rapa* 'headache. pain (in head), ache' 4; WRN *rapa.rr.ku-ji-nya* 'swell up' 4; YUL *rapu.rapu* 'bruise, blister' 5; pWK **tapa* 'sore, wound' 3.

Residue: YDN prenasalized suffix *–tampa* 'with a lot of ...' 3, which is paralleled by English 'thumb' and 'thousand', both of which descend from the pIE root **teu* (schwa) 'to swell' (Hendrie, personal communication).

R25 pNYY **rapa-* 'fall down; set ...of heavenly body'. Antonymically shifted form in NGJ *RABA-N* 'appear; confront' ("rise, arise") 3; NYU-N *DTABBA.T* 'fall, as rain; set, as the sun; fall down' 4; NYU *thapa.t* 'fall down' 4; proto-Yuulngu **rap-* 'falling down', in GUP *rup.mara-ma* ~ *yup.mara-ma* 'take off, down' 3, *yap.thu-n* ~ *yup.thu-n* 'go down. fall down, descend' 4; DJP *yup.thu-*N_2 Vintrans. 'fall down, come down' 4; RIT *yup-u-*V_5 intrans. '(hair) to fall out'; 'to be removed from (something)'; (tide) to go down' 3, *yup-(u-n-)mara* 'remove clothing' 3.

The change **r > y* is widely attested in Pama-Nyungan languages, while **y > r* is unheard of. The assimilation of V_1 to V_2 in Yuulngu is seen in **jAya-* 'send' > GUP *djuy.'.yu-n* as well as in further examples cited in these pages.

I take NGJ to be genetically closer to NYU than to GUP, yet the latter two languages essentially agree in the semantic reflection of **rapa-*. The ancestral referent range is thus reconstructed accordingly.

Residue: PNK *BABMA-TA* 'rise; come up' 1 (more plausibly a cognate of NYA-W *tama-rna...#a* 'arise, get up, emerge...', however).

R26 pPN **raapa-l* 'cause to have room, make room (for)'. Hendrie **raapV-*. O'Grady (1998) **rApa-*. PIN *rapi-rnu* 'make room' *4;* KAU *TAPPI.NGYA-NDI* [Vtrans] 'open' 3; PIT *tapu.kurri* 'shut' 3; BAA *thapi.nya-* 'move away, make room' 4. Antonymic semantic development (> 'cause to have no room, throw (forward), trip') in KLY *RAPA-I* (< pre-KLY **raapa-l)* cause to stumble' 4; WMK *thee'-an* 'throw, give' 3; JGY *tapa-y* 'throw down' (Patz) 3, *tapa.n.pa* [VTrans.] 'trip' (Hale) 4; MRG, GNY *thabi* 'send, let go' 3.

Several of the semantic associations implied in the above are confirmed by reflexes of **jAya-* 'send, throw', attested, for example, in Gurindji (GUR) *jaya-* 'give', pNG **thaya-lku* 'send', GUP *dhayu.nga-n* 'send', KLY *TA-I* 'throw', *thaya-n* 'throw, trip', and in YAR *TAIYI-N* (apparently */thayi-n/*) 'sending'.

R27 pPN **rapang* 'sound, noise'. Hendrie **rapang*. PIN *rapu.ly-pa* 'thud...' 3; GID *tapaang* 'sharp sound' 3. The development whereby **a* at V_2 descends as *u* following a bilabial is attested elsewhere in Nyungic

R28 pPN **raapa-y* 'have (enough) room'. GID *taapa-* 'stretch one's muscles' [implying that one has room to do so?] 3. Antonymic development in KLY *RAPI* 'stumble' 3, *rapi* 'to limp'.

R29 pNYY ****rapi*** ‘hip; “extension” of hip, viz., coolamon’. NYA *rapi* ‘hip’ 3; WLM-N *lapi* ‘shallow coolamon’ 3; KLY *rapi* ‘to limp’. Reflexes of **kAka*, **mikany* and **pita* further attest to a ‘hip’: ‘coolamon’ connection.

Residue: prenasalized form in JIW *jimpi* ‘hip’ 3.

R30 spPN- ****rapu*** ‘light in weight’. Hendrie **rapu* ~ **rampu*. NYA-W, WRN *rapa* ‘light in weight’ 4, 4; MNG-N,, YUL *rapu* ‘light in weight’ 5, 5; WLM *rapu* ‘light, weightless, bread…’ [also ‘Friday’ in O’Grady field notes] 5; YAN $rapu_1$ ‘bald’ 3.

Residue: UMP *wapu* ‘light in weight’ 3. A development of **r*- to *w*- in this language, and the conditioning for it, have yet to be confirmed.

R31 spPN ****rApu(l)*** [marine-related term], YAN $rapu_2$ ‘Bailer Shell’ 3; YDN *tapul* ‘sand; beach’ 3.

R32 spPN ****rapu(rr)*** ‘possum’. Hendrie **rapu*. KAU *TAPU.RRO* ‘skin of opossum…’ 3; GUP *rupu* ‘possum’ 3.

Residue: prenasalized forms in YAO *ampuy[u]* ‘female cuscus’ 4; UMP *ampuy* ‘sp. possum’ 4.

R33 pPN ****rara(ny)*** ‘swelling, inflating’. Hendrie **rara*. NYA-W *raa* ‘swelling, expanding’ 5, *kaka-rni raa* ‘daybreak’ (*kaka-rni* ‘east-ABL’) 4; WLP *raa* ‘clear, open, cloudless, uncovered’ 3; PIN *rara* ‘swollen …of wounds’ 5; UMP *tha’a* ‘pain; sick. Tired’ 4; JGY, YDN *tara* ‘stiff’ 3; WEM *lari* ‘lungs’ (*lariny-uk* ‘his lungs’) 3.

R 34 pPN ****raarr*** ‘roar, tumult’. Hendrie **rarr*V_2.. NYA-W *raarr* ‘roar.. as of surf’ 4, *raarr-raarr* ‘rustling sound .. as of a snake in grass’ 4; WLP *raarr.pa* ‘rattle, scratching sound..’ 4; PIN *rarr-pa* ‘tearing noise’ 3; NGJ *RARR-RARR* ‘sing out’, ‘waterhole near Kopal Hill in Murrunidja country’ 2; YAR *RARAU.WE* ‘tumult, row; noisy assemblage’ 3.

Residue: GUP *rar.’.rar.yu-n* ‘sound of leaves rattling in the jungle’ 1. **rr* is not otherwise known to weaken to /*r*/ in this language.

R35 spPN ****rArra-*** ‘burn’. GUP *rarra.rra.ma-rnu* ‘blaze (fire)’ 4; PNK *YARRA.RRI-TI* ‘speed, spread [as fire]’ 3; pKR **tarrha-* ‘ignite’ 4; DIY *tarrha* ‘make (a fire)’ 4.

R36 pPN ****rArra(ng)*** ‘stone’. GUP *rarra.la* ‘smooth stone…’ 3; JPW (Tjapwurrung) *laa* ‘stone’ 5; WOI *laang* ‘stone’ 5. The deletion of intervocalic **rr* is known to have occurred in some Victorian languages. Witness WEM *lia*, WOI *liang* ‘tooth’, from pA **rirrang*.

R37 spPN *rArri- ‘pour ..as tears’. PIN rarri.rarri ‘delirious’ 3; GUP rarr.yu-n ‘pour’ 4; YAN rarri-njarra ‘cry’ 4; PIT tarri Vintrans. ‘boil’ 1. For further evidence of connection between 'pour' and 'cry', see *rAya, below and (ultimately) *ngAka-, *yirra and *yUla-.

R38 spPN *raarri(l) 'having crust or shell'. Hendrie *raarrV. GUP rärra.dha 'sp. crab dh' (sic) 3; YIM-C taarriil 'food with crust or shell' 3.
Residue: KAU form with increted –k- in TAR.K.A 'EGGSHELL' 2.

R39 spPN *_rarrku(l)_ 'three'. NYA-W _rarrku_ 'without exception; the whole lot, all' 3; KAU _TARKA.NYE_ 'third stage' [in initiation] 3; YIN _jarrwu.rti_ ~ _jarrwi.rti_ 'three' 5; PAN _jarrku.rti_ 'three' 5'; pKM *_jarrku_ 'three' 4; JGY _tawul_ 'three' 3; YDN _takul_ (< pre-YDN *_tarrkul_?) 'three' 3; MBA _arrju_ 'three' (from pre-MBA *_arrku_?) 3.
Residue: BAA _parrku.lu_ 'two' 2; ARB _parrku.lu_ 'two' 2; pKR *_parrkulu_ 'two' (> DIY _parrku.lu_ 'three' 3). Other strands of evidence in these pages point to the development *_r- > p-_ as a possible sound change. Otherwise, we may be seeing the effects of Taboo-Deformation.

R40 pPN *_rArrpi-_ 'sweep, sweep away, throw out, deny'. WLM _rarrpa-rnu_ 'sweep' 5; GUP _rarr'.yu-n_ 'throw out (water), throw down (firewood)' 3; pCK *_tarrpa-_ 'sweep' 5 (> DIY _tarrhpa-_ 'sweep' 5); YAN _na-rarrpi_ 'stick used to spread hot ashes' 3; GYA _tarrpi-l_ 'deny relationship to' ("sweep aside the idea of relationship to …") 3; JGY _tarrpa-y_ 'slip off' 2; WEM _larrpa_ 'throw' 4.
Residue: JGY _tapa-y_ 'throw down' 2 possibly belongs here since *_rArrku(l),_ above, appears also to have lost the preconsonantal *_-rr-_ in its descent into YDN _takul_ and JGY _tawul_. GID _taarri-_ 'rub, wipe' 2 may point to an ancient stage in Pama-Nyungan in which a *_-p-_ had yet to be increted into a root *_raarri-_

R41 pDN *_rata_ 'rough, rough in behaviour' . NYA-W _rata.rata_ 'rough, uneven .. as haircut' 3; GRJ _rat wana-ti_ 'to faint' 3; WLM _rat.rat.kanyji-rnu_ 'kick about (in tantrum)' 4; PIN _rata_ 'one who resists either good or wrong' 4, _rata.nyju_ 'stubborn' 3.
Residue: WOI _tanta-buniny_ 'ill' 1 is (barely conceivably) a prenasalized suffixed reflex of an early root *_rata_. For this to be so, however, it would be necessaary to demonstrate that /l/ is not the only possible continuation of initial *_r_ in (most of) the languages of Victoria. See *_raju,_ *_rara(ny),_ *_rArra(ng),_ *_rArrpi_—and *_rirrang._

R42 pPN *_rawa_$_1$ 'NEG'. Hendrie *_rawa_$_1$. GRJ _rawi.n_ 'calm at sea' ("no (wind)") 3, _rawa.rri_ 'dead' (no (life)") 3 (Capell); MNG-N _rawu.rr_ 'thin' ("no (fat)") 3; WLM-J _rawi.rra.l_ 'sparse ..as shade from tree' 3; WLM, YUL _rawa_ 'long time' 4; WLP _lawa (wawa_ in Baby Talk) 'absence of something: nothing, no, none, absence, absent' 4, _rawa_$_1$ 'shallow' 3, _rawu_$_2$ 'abating, stopping, blocking' 3 (see below); PIN _rawa_ 'continually, still' (connected to the notion of Eternity and to the idea of beings/spirits existing in an incorporeal state) 4; KAU _TOWI.LLA_, probably _/thawi.lha/_, 'soul, spirit, ghost' 3; pK *_thawa.lu_ (for *_thawa.rl_u?) 'shade' 3 (YDN _malu.way_ (< pPN *_malung_) 'shadow, reflection, spirit' helps to bridge the gap between 'shade and 'spirit'); JIW *thawu* [a going to sleep (of body part)] ("a dying") 4; GUP *räwa.k* 'dry…' ("no (moisture)") 3; YAN *rawa.rawa* (archaic) 'overcooked…dried out' 3.

UMP *awu* 'bush spirit; devil; machine' 3, *awi* 'bald' 3; KKN *rawa.r* 'nothing' 4; YDN *tawi-N* 'disbelieve' 3; KAB *DAUWA* 'dead tree, log' 3; GID *tawa.rr-kan* 'ghost of a dead Aboriginal woman' (*-kan* 'FEM') 4; DIY *tawa-rdawa-* 'prevent someone [from] doing something' 3.

Concerning the evolution of terms for 'prevent' in Pama-Nyungan, see WLP *rawu*$_2$, above, and compare UMP *ngampa* 'NEG' with NYA *ngampa.pi-ni* 'stop, prevent', from spPN- **ngampa* 'NEG'; or UMP *walki-la* 'stop, prevent' with WLP *walku* 'nothing, no, none, absence, absent' and NGW *walki* 'no, not', from spPN- **walkV* 'NEG'.

For further confirmation of the semantics, see also **kutu*, **nyujan* and **yakum* in O'Grady 1990g:469. Reflexes of a root **purun* will also be (eventually) illuminating.

R43 spPN **rawa*$_2$ 'sp. lizard'. Hendrie **rawa*$_2$. NYA-W *rawa.l* 'Racehorse Goanna' 3; WLP *liwi.rri.ngki* 'Burrowing Skink' 1; UMP *thawa* 'Frilled Lizard' 3. See O'Grady and Fitzgerald (1997:345).

R44 spPN **rAwu*$_1$ 'white'. YUL *rawu.rr* 'white clay, marl' 4; PNK *YAO*, evidently /*yawu*/, 'seagull' ("white") 3; YAN *rawu* 'sand dune' ("white"?) 4; YDN *tawu.kan* 'silver bream' ("white") 3.

Residue: WLM *mawu.nti* 'white ochre' 1.

R45 spPN **rAwu*$_2$ 'underground (water)'. WLM-E *rawu.l.ka* 'light water (brackish)…' 3; WLP *rawu*$_1$ 'underground, deep down' 3; YAN *rawu.rr.ki* 'well, soak, underground source of water' 3; WMK *aw.ar* 'hole in ground …grave' 2

R46 pPN **rAya* 'pouring, flowing'. WLP *liyi*$_1$ ~ *lii* 'crying' 4; YAR *RAIA.RA.LI-N* 'flowing, overflowing', *RAIA.RA.MI-N* 'pouring out' 4. For the vowel fronting in WLP, compare pA **mayi* 'vegetable food' > WLP *miyi*$_1$. For the semantics, see O'Grady (1998:215) and note **rArri-*, above.

R47 pPN **rAyi* 'fear'. MNG-N *rayi.nta-rri* 'be frightened' 5, *rayi.ni-ka-* 'frighten' 5; WLM *rayi.n* 'fear' 5. Elsewhere in Pama-Nyungan, forms for 'fear' in *w-* are widespread, e.g., PNK *WAII* 'afraid, fear'; NYU-N *WYE.N* 'to fear'; NYU *waya.rn* 'afraid, frightened; dead'; NMA *waya-karri-ku* 'be frightened, scared, shy'; YIN *waa* (by regular sound change from pNG **waya*) 'fear'; and on the east coast YAY *wayi* 'fear'. See Fitzgerald's **wAya(n)* (1997:241-242).

The occurrence of the *w*-forms flies in the face of the expected sound changes exemplified in these pages. Yet it seems overwhelmingly likely that the MNG-N and WLM *r*-forms are related to the *w*-forms in the other languages. It is possible that the *r*-forms result from the reanalysis of an old pPN root **wAyi*, based on a perceived notional relationship between 'fear(ful), frightening' and 'spirit' (see below).

R48 pPN _*rAyi(n)_ 'spirit'. NYA-W _rayi_ 'guardian spirit 4; NYA-L _rayi_ 'spirit' 4; GRJ _rai_ 'spirit child' 5; WLM _rayi_ 'spirit that looks like a small child' 5; YAN _na-rayi_ 'sound of language; sound of animals/birds; sound of running water/the sea ("spirit")' 3; YUW _tayin_ 'man, men, people' 3.

R49 spPN _*rA(y)ma(l)_ 'side'. Hendrie _*rama_. NYA-W _rami.ny_ 'rib' 4; WLM _rama.rra_ 'side of body, side of tree' 3; WLP _rama.rra_ 'rib' 4, _lama_ 'thin, emaciated' 3; PNK _YABMA_ 'back of a man' 3; GUP _rayma.l_ 'temple, side of head' 3.

Residue: It is conceivable that pNG _*thampi_ 'rib' 1 obscurely reflects spPN-_*rA(y)ma.l._ Note also GYA _jamal.ka_ 'shoulder blade' 3, with unexpected laminalization of _*t- (< *r-)._ With this phenomenon, compare PIN _tapu.tapu ~ japu.japu_ 'ball, round object', where proto-Western Karnic _*tampu_ 'round', KLY _dapar_ 'sky' and UMP _taway_ 'moon' point conclusively to _*t-_ as the ancestral initial. Could the PIN variant with _j-_ constitute evidence for the beginnings of initial laminalization in that language?

R50 pPN _*rAymi-_ 'tell'. YDN _yaymi-L_ 'ask' 3; YAR _RAMMI-N_ 'telling' 3.

R51 pPN _*Rija_ 'heart'. BAK _thitha_ 'heart' 5; pCK _*t_iji 'sun' 3; WNN (Wannon_)_ _lij_ 'heart' 5. A root _*ngAngkV_ recapitulates the 'heart' > 'sun' development in WMK _ngangk_ 'heart…', NYU-N _ngangka_ 'sun…' (Fitzgerald 1997a:161).

R52 spPN _*riji_$_1$ 'bone'. NYA-W _riji.riji_ 'cuttlebone' 5; NYA-S _riji_ 'pearlshells with belt…' 4: GRJ _riji_ 'any kind of shell' 4; NGL _riji.riji_ 'cuttlefish shell' [5] (contains _r-_: loan from NYA); KLY _RID, ridh_ 'bone' 3; KLY loan in MIR (Miriam) _LID, lid_ 'bone' [3]; WMK _thiith_ 'egg' 3.

R53 Possible root in pPN _*riji_$_2$ 'heel'. WLM _riji-karri-nyu_ 'dance (corroboree); play' 2; YAR _RETYI.NNE_ 'heel' 2. I include this potential pPN root here because the heel figures prominently in much of Aboriginal people's dancing. There is a simple way to try to strengthen this potential cognate set: to call up and place side-by-side terms for 'heel' and 'to dance' in a large number of Pama-Nyungan (or, indeed, Australian languages). When this is done, we are confronted, for example, with Jabugay (JGY) and YDN _juka_ 'heel' and Warlpiri _juka.pi-nyi_ 'dance (as men do), holding body upright', (with which compare pK _*juka.rra_ 'foot', bespeaking an spPN root _*jUka_ 'heel').

In addition, KAU _TUNDO.NDO_ 'ancle bone (sic), if _/thunthu…/_, is no stranger to WMK _/thuunth-thuunth-an/_ '…dance'. And UMP _tha'u muta_ 'heel' is probably reconciliable with ADN _murta_ 'to dance' (and PNK _MURTI-TI_ 'rejoice, exult, shout') and with WLP _murtu ~ mirdi,_ NYA-W _murti.ngi_ and PIN _murti_ 'knee'.

I hope that the point has been made that dubious-looking or possible cognate sets in Pama-Nyungan languages can often be strengthened substantially by seeking out parallel but totally independent evidence. Moreover, in the process of carrying out such an operation, one is apt to discover still more putative cognate sets. The **riji*$_2$ 'heel' root can now be re-listed as R53a with a substantially higher PR (Plausibility Rating):

R53a pPN **riji*$_2$ 'heel'. WLM *riji-karri-nyu* 'dance (corroboree); play' 4; YAR *RETYI.NNE* 'heel' 4.

R54 spPN **rika* 'side'. Hendrie **rika*$_2$. PIN *riki.rr-pa* 'sound of spear hitting *rib* area of kangaroo' 3 (my emphasis – GNOG); KAU *TIKI* 'region of the ribs' 4; PIT *tika.rra* 'sky' 2; YIM *tika.rra* 'defender (< "one who stands side-by-side with the targeted person?") 3; YDN *tika.rra* 'coastal country' ("(coast)side") 3; YAR *RIKKA.RA* 'south' ("coast side") 3;

Residue: UMP *tika* 'side –of a river' 4; DIY *tirrhka.la* 'side' 1. The reflexes of initial **r* in UMP are more frequently *th-* or zero. No regular process is known that would insert *–rrh-* before a stop in Karnic, yet all of pPN- **r-*, **-i-*, **-k-* and **-a* are reflected in the DIY form, and in that order.

R55 spPN **rika-* 'call'. PCK **tika-* 'call' 5; DIY *tika-* 'call by name, name' 5; GYA *tika.l* 'bird' ("call-er"?) 3.

Residue: WLM accreted prenasal-grade form *ringki.rr.ma-rnu* 'grunt' 3.

R56 spPN **riki(rr)* 'bone, bone-like; shell'. WLM *riki.rr.ki.rr* 'thin, e.g., a bony dog…' 3; WLP *liki.rri.ri* 'egg shell, husk, pod' 4; WMK *ik* [bone] (meaning inferred from examples given) 3, *ek* 'shell' 4; YIM *tikirr* 'shell (of turtle, crab, nut, coconut)' 4; JGY *tikuy* 'chicken hawk' 1; YDN *tikirr* 'nose; bird beak' ("bony"?) 3; KUN *igh* 'shell' 3. GID *tikirr* 'bitter' 0.5 is included here as an example of a form which seems quite intractable semantically, and yet just might eventually turn out to be another cognate.

It is quite possible that **riji*$_1$, also 'bone', is to be subsumed under **riki(rr),* its ancestral **k* having palatalized in the [*-bk*] vocalic environment.

Residue: WRN *yika* 'bone' 3 and PIN *yiku.lu.ku* 'eagle type' 1, with *y-* for **r-*.

R57 spPN **ril* 'clean, smooth, tuneful (music)'. GRJ *rili* 'clean' 4; WLM *lin* 'tune, rhythm; familiar sound' (**ril* > *lil*, followed by dissimilation to *lin* ?) 3; WLP *ril* 'smooth' 4, *ril-pi-nyi* 'smoothe down, scrape down, rub down, clean off, rub off' 4; THL *yiil* 'tune' 4; WRG *yiil* 'name' 2; NYW *yiyil* 'home' 2.

R58 spPN **rila(n)* 'rubbish'. NYA-W *rili.l* 'toothache' 4; GRJ *rili.l* 'rubbish' 4, *jawa rili.l* 'toothache' (*jawa* 'mouth') 4.

Residue: Increted form in YDN *til.k.an* [dog excrement] 3.

R59 spPN **ri(l)ngku(l)* 'thin'. O'Grady **rilngki* (1998:217). PIN *ringki* 'fragile, delicate…empty' 3; WMK *telngk* 'thin, slim' [of humans only] 3; YIM *tingka-thirr* 'hungry' 3; GYA *tingkul* 'part, part full…'2; YDN *tingkul* 'fibula; bone awl' 3.

R60 pNYY *_rilypa_ 'water'. Hendrie *_rilypa._ PIN _rilypa_ 'seepage water...' 4; GUP _raypi.ny_ 'fresh water' 4; BAA-BAR _thilpu.rru_ 'water'. 3.

R61 spPN *_rimpi_ 'forehead'. WLM _rimpi_ 'sibling of opposite sex...'3; WRG _rimpi_ 'forehead' 3.

R62 spPN *_ringa_ 'rub'. YUL _yinya-_ 'rub in ...e.g., ochre' 3; MRN _wanga-_ 'rub, wipe' 1; pCK *_tinga-_ 'rub, scrape' 3.

R63 pPN *_rinyja_ 'meat'. WLM _linja.rti_ 'tasty (e.g., when salt is added to meat...3; WLP _linja_ 'smell as of meat cooking' 4; GUP _reny_ 'sharks and stingrays (gen) dh' 3; pCNSW *_thiiny_ 'meat' 3. The development of *_r-_ > *_th-_ in pCNSW is also seen in the reflex of *_raa_, namely *_thaa.rr._

R64 pDN *_ripa_ 'pain, ache'. NYA-W _ripi (jawa)_ 'toothache' [5]; YUL *_ripi_ 'toothache' [5]; KAU _TIPPA.RE-NDI_ 'feel pain; ache' 4.

R65 spPN *_ripa(n)_ 'clear, clean'. GUP _reba.l'.yu-n_ ~ _rewa.l'.yu-n_ 'to clear – of weather, cleaning house...' 3; YDN _tipan_ 'bare top of mountain; bald head' 3.

R66 spPN *_ripu_ [referent unclear]. Possible root. WLM-N _lipi.l_ 'Click Beetle' 2; YAN _a-ripu_ 'Death Adder' 2.

R67 pNY *_riri-_ 'move'. GRJ _rili.ma-npa_ Vtrans. (with dissimilation) 'move' 4; WLM _riri.pa-nu_ Vtrans. 'move gently' 4, _riyi.ma-_ Vintrans. (with dissimilation) 'move' (O'Grady) 4; WLP _rirri.ny.ki_ (with dissimilation) 'constantly moving over an area...' 4; PNK _IRI-TI_ 'move, be moving, shift' 3; GYA _tiri.tiri_ 'sandfly' ("darting"?) 2.

R68 pPN *_rirra_$_1$ 'bird'. Hendrie *_rirra._ NYA-S _rirra.pirta.n_ 'palm cockatoo' 4; BAY _thirra.nti_ 'red-crested cockatoo' 3, _yirra.parlu_ 'white cockatoo' 3; GID _yirri.rriiny_ 'bird (generic) 3.

Residue: NYA-W _lirra.pirtan_ (with unexpected _l-_ reflecting *_r-_) 'red-tailed black cockatoo' 4.

R69 spPN *_rirra_$_2$ 'top, above, up'. Hendrie *_rirri._ NYA-W _rirri-rni kaniny_ (top-ABLATIVE down) 'down a steep slope' 4; NYA-W, MNG-N _rirri.rirri_ 'glans penis' ("the top") 3; WLM _rirri.ngki_ 'edge, bank' 3; WLP _rirri.rirri_ 'boss man...' ("top person") 3; PIN _yirra nya-ngu_ 'look up' 4; NYU-N _IRA, yirra_ 'up' 4; _DJERRA.L, jirra.l_ 'north' 3; PAY _yirra.ra_ 'east' 3; JIW _yirra.ra_ 'top, above' 4, _yirra.rta_ 'bank of river' 4; UMP _yi'a.ji_ 'middle' 2; GID _yirraa_ 'opposite direction' 2.

Residue: NYA-W increted forms _rirr.j.i.rirr.j.i_ 'steep bank' 3, _rirr.j.i.pi-ni_ 'heap up sandbars .. of river flow' 2.

R70 pPN **rirra* 'voice, song'. *GRY yirra.ru* 'song' *4; YIN yirraa.ma-* 'sing' 3; GUP *rirra.ka.y* 'noise, voice' *4, dhäru.k rirri.'.rirri* 'person who talks all the time... ' 3; YAN *nyampa-rirra.rirra.ma-ntharra* 'crying out in chorus; talking, of large numbers of people' 3; YDN *tirra*$_2$ 'name' 3.

Residue: WRN increted form *lirr.k.a* (with unexpected *l*- for **r*-) 'name' 2; GUP increted form *lirr.m.u.yu-n* 'dance, act' 1; GYA increted prenasalized form *tirr.mp.ay* 'seagull which gives warning...; music struck as a warning...; message to dead...' 2; WARR (Warrnambool) increted form *liR.p.i-n* 'sing' 3.

R71 pAT **rirrang* 'tooth' . NYA-W *rirra* ~ *yirra* 'tooth' 5; GRJ *rirra* 'tooth' 5; WLM *lirra* 'teeth' 5; WLP *lirra*$_1$ 'mouth. lips' 4; WRN, PIN *'yirra* 'tooth' 5; PIN *rirra* 'type of stone' 2; KAU *TIA* (putatively */thiya/*) 'tooth, edge' 4; PNK *IRA* 'tooth' 4; pNG, pKM **yirra* 'tooth' 5; GUP *lirra* 'tooth' 5, *lerra.wa* 'blue-tongue lizard' 1; UMP *irra* 'snake' ("fanged"?) 3; GYA *tirra* 'tooth' 5; YDN *tirra* 'tooth; seed; hail' 5; GOA *RIR.RA* 'tooth' 4; GID *tirrang* 'tooth' 5; GUM *tiira* 'tooth' 3; YOR *tiRa* 'tooth' 4; WEM *lia* 'teeth' 5; WIM *lia* 'tooth' 5; WOI *liang* 'tooth' 5.

Outside of Pama-Nyungan, Batyamal of the Daly family has *tirra* 'tooth' 4, and Capell (1956b) douments *rere* 3 for 'tooth in Kakadu. Since **rirrang* is so extremely stable in mainland Australia, it is logical to seek further cognate(s) in Tasmania, separated by the postglacial rise in sea level from the bulk of the continent for the last 10,000 years only. Plomley (1976:110) does, in fact, list *EERA* 'teeth' from the Arthur River area in western Tasmania and this seems sufficiently far removed from the Ben Lomond region in the northeast to be free of Kaurna influence. (See Amery 1996:24ff, who performed a brilliant feat of detective work in unravelling the saga of a Kaurna woman who was abducted by sealers from South Australia to Tasmania 'some time after 1823').

Further removing Arthur River *EERA* from the possibility of its being a Kaurna word is the fact that 'tooth' in KAU is not *EERA*, but *TIA,* cited above. (Two additional solid-looking Australian-Tasmanian cognates are represented in pPN **pula* 'two' versus *BOULA* 'deux' from the southeast of the island, and pPN **nyun* 'thou' versus *NINA* 'vous', from the southeast and elsewhere. A not-quite-so-plausible cognate pair consists of spPN **tarra* 'seagull' and *TARRI.NA* 'albatross' from the north of Tasmania. I am convinced that more Australian-Tasmanian cognates are to be found.).

Residue: Increted form with accretion in WLM *rirr.k.a.rra* 'grinding action with teeth' 3; increted form in GUP *lirr.g.a* 'bluetongue lizard' 1; increted form (with subsequent vocalic apocope) in WER-D *lirr.k* 'death adder' 2. With the semantic development, compare UMP *irra,* above.

[Editorial note: With such carefully analyzed data presented, especially one conservative body part name 'tooth' and two of the most conservative items known to comparative-historical linguistics – 'thou' and 'two' --, I have no doubt that Tasmanian will be related to Australian one day soon. This does not deny a potential or probable Tasmanian relationship to Indo-Pacific, as Greenberg and others have proposed, nor does it deny the more remote Australian-cum-Indo-Pacific relationship which some of our colleagues have already found and are getting ready to propose formally, in public. – HF]

R72 pPN **rirrku(l)* ‘thin’. WLM-E *lirrki.ny* ‘thin’ 4; WLP *lirrki.lirrki* ‘sparse, denuded ..as tree.., skeltal in appearance ..’ 4; GUP *rirrk.miny* ‘permanently invalid…leper…’ 3; RIT *rerrk* ‘sickness’ 3; antonymic development in YDN *tirrkul* (used as Adjective and Noun) ‘fat’ 3; BAA *thirrki.ki* ‘ribs’ (prominent ribs being a hallmark of being thin) 3.

R73 spPN **rirrpi* ‘nail, claw; chip’. WLM *lirrpi* ‘chip (of wood)’ (O’Grady) 3; MDB-W *libi* ‘fingernail’ (Nash) 3; WRI *lippi* ‘nail, claw’ (Nash; both by regular sound change) 3. Reduplicated form **rirrpi-rirrpi* (Hendrie: *rirrpirirrpi*) in NYA-W *rirrpi.rirrpi* ‘having parallel ridges’ 4; UMP *thirr’i.thirr’i* ‘wrinkle’ 4.

R74 spPN **rirru* ‘bitter, sour’. Hendrie **rirru*. PAY *jirri.jirri* ‘bitter’ 4; GUP *rirri.’.rirri* ‘hard, harsh…’4

Residue: YIM *thirru* ‘bitter, sour, strong tasting’ 3. YIM may be feeling the ‘young flood’ of initial laminalization. The expected outcome here is **tirru*.

R75 pPN **riwu(ny)* [a season of the year]. PIN *riwa* ‘season when there are no kangaroos because of prolific growth …’ 3; YDN doublet *tiwu.rr* ‘blue sky’ 2, *yiwany.ji* ‘winter time’ 3’ YAR *rewu.ri* ‘spring of the year’ 3.

R76 pNYY **riya* ‘head’. WLP *liyi*$_2$ ‘growth, lump, mole’ 3; GUP *liya* ‘head’ 4; YRN (Yarnango*)* *ria*, in *ria nindjia* ‘bald’ (Capell 1956b) 4; conceivable antonymic development in YIM *tiya.rr* ‘hole’ (“head” > ‘hill’ > ‘hole’) 1.

Residue: NYA-L *niya.ma.rri* ‘hill’ 2 with its anomalous *n-* is possibly the result of a dissimilative process. Alternatively, its *ni-* raises the possibility that it is a loan from a Dampier Land language such as Yawuru.

R77 pPN **riya-* ‘open up to view, show’. YDN *yiya-*l Vtrans. ‘open out’ 4; YAR *REYI-N* ‘shewing’ 4. [Ergo ‘showing’ in my dialect.—HF]

Residue: WLP *riwi* ‘visible in distance…’ 2 has *-w-* for the expected *–y-* (see **riya*).

R78 spPN **rUju* ‘play, game’. WLM-E *ruju* ‘game; corroboree’ 3; WLP *ruju.ruju* ‘moving, wiggling’ 1.

Residue: prenasalized form in YDN *tunji-N* ‘be happy, play happily (generally used of chi.ldren) 3.

R79 Possible pDN root **ruka* ‘(hunting) ahead of a bushfire. [WLM *ruka* ‘ahead of a grass fire’ 4]; [YUL *ruka* ‘near a bushfire 4] (“near a potentially blackened stretch of country”?); PNK *YUKA* ‘dark, black’ 2.

R80 pPN **rUka*$_1$ 'bent, twisted'. KAU *YOKU.NNA* 'crooked; curled; bad' 3; NGJ *RUGA.RUGA* 'winding, twisting' 3; GYA *tuku* 'bent' 3; BAA *thuuka-* Vintrans. 'turn' 3.

R81 spPN **rUka*$_2$ [a kin term]. NYU-N *juka.n* '(elder') sister' 1; GUP *yuku.yuku* 'younger brother or sister' 1; ARB *luka* 'mother' 1; KLY *RUGA.LG* 'sweetheart' 3.

Residue: prenasalized form in YDN *tungka.rr* 'child's spouse' 3

R82 pNYY **ruka-* 'postpone, POTENTIALLY forget'. NYA-L *ruka-na* 'dream of self in another place' ("forget oneself"?) 3; WLM *ruka-rnu* 'forget' 3; GUP *ruki.ruki.thi-rri* 'bide one's time...' 3.

R83 spPN **rUka(l)* 'descent, going down'. NYA-W *ruka* 'late afternoon' ("going down of the sun") 5, *ruka wari.ny* 'yesterday afternoon' 5; YUL *ruka.minyi.rri* 'afternoon' 5; PIN *yuka.rli.ti-ngu* 'descend' 3; pNG **yuka* 'afternoon' 5; WMK *uk-an* 'go down' 3; DYI-*G* *rukul.mpa* 'yesterday' 3, *ruku.lu* 'the other day' 3.

R84 spPN **rUku*$_1$ 'sp. plant'. NYA-W *ruku.ruku* 'sponge' 1; GUP *rogu* 'trailing plant (grows on beach)' 4; KLY *RUKU* 'a creeping and climbing plant...' 4. There are three different plants named in YDN whose names begin with *tuku*... 1. Borrowing between GUP and KLY during the pearling era is conceivable.

R85 pPN **rUku*$_2$ 'skin, covering'. WLM *ruku.ka-nu* 'close; seal; block off; shut' 3; YDN *tuku.pil* 'bark water bag' 4; WAD-P *luko* 'skin' 4.

R86 pPN **rulku* 'heart'. PNK *YULGO* 'heart' 5; GUP *rulku* 'part of fish's anatomy...' 3; YDN *tulku* 'heart' 5; DYI *rulku,pala* 'heart' 5; GID *tulku* 'heart' 5

R87 pPN **rulpa(l)* 'straight'. YUL *Yulpa.ri.ja* (people, language) from the south' 4: OOL *ulpa.ri.rra* 'south' [to the right of east] (see WEM, below) 4; YAN *nyampa-rulpa-ntharra* 'straightening out one's arm/leg' 3; UMP *tupal-nga-la* 'straighten it – as rod', with haplology from earlier **tulpal-*? 3; comparable haplology in WMK *topal* 'Butcherbird' [has straight bill] 2, and in GYA *tupu.ran* 'directional sign...' ("that which shows the way correctly") 3; WEM *yulpoen* 'right hand; straight (track)' 3. For the haplology involving the loss of a liquid before a stop in three languages, compare **rArrku(l)* > YDN *takul* 'three'.

R88 spPN **ruma*$_1$ 'fire'. pNG **thama* 'fire' 2; YAN *ruma.rri.njarra* 'igniting, catching fire' 3; pP **juma* 'fire' (Hale 1976a-c) 5; UMP *yuma* 'fire' 5; WMK, YY *thum* 'fire' 5.

R89 spPN **ruma*$_2$ 'chest, front; "front" which a society presents to the world, law; sacred'. Altered form, probably due to Taboo-Deformation, in MDB *yumi 'law'* 4; GUP *rom* 'law, custom, habit, way of life' 4; YAN *ruma.n.ngu* 'unmarried man/woman…' 1; KLY *RIM(A)* 'secret; a shadow' 3;YIM *tumu* 'chest' 3; GYA *tumu* 'chest, hillside' 3; YAR *RUMAI.Y* 'west (< "sacred"?) 2. For the semantics, compare **ngarrka* (as reflected in NMA, WLP and Ngarkat) and **yurnpa* (in NYA, PLK and NGL).

R90 pNYY **rumaru* 'person to be avoided because of kin relationship'. GRD *yumari* 'father's sister, FaSi' 4; PIN *yumari* 'mother-in-law or her brother' 4; PNK *YUMMARI* 'mother-in-law, wife's mother', 'WiMo' 4; WIR *umari* ~ *umuri* 'wife's father, WiFa' 3; KOK *uma* 'yes' (to members of Nganantarrka moiety) (otherwise *uwa*) 1; GUP *rumaru* 'person to be avoided because of relationship' 4, *rum.'.rum.dhu-n* 'avoid' [observe avoidance taboos] 3.

Residue: WLP *yumari* 'dancing board' 1; YIN *yumu.ni* ~ *yumi.ni* 'stepfather, father's older brother, FaElBr' 2.

R91 spPN **rUmpil* 'covering'. GRJ *rumpu* 'hut, house' 4; UMP *Umpila* 'Umpila people or language' ("housed, sheltered") 3; GYA *tumpul* 'hard covering such as bark of tree…' 4. Such naming of a people is also in evidence in the evolution of the tribal and language name *Payu.ngu*, with which compare YIM *payan* 'house, shelter, humpy', from pPN **payu(n, ng)*.

R92 pNYY **runga* 'throat. NYA-W *runga.n.runga.n,* most likely in error for */runga.rn.runga.rn/* 'throat' 4; GUP *rungu* 'throat' 4.

R93 pPN **runga-* 'bark (dingo, dog)'. NYA-W *runga.ji-ni* 'howl, whine -- as dingo, dog' 5; NYA-L *runga.ji-ni* 'howl .. as dingo' 5; WLM *rung.ma-rnu* 'bark' 4; MDB *rung* 'bark (dog)' 4; YAN *yunga-ntharra* 'howling (dingo/dog)' 4; JGY *tungu.rr* 'noise' 2; WAA *yung(pa)* 'bark, yelp' 4; YAR *RING.BA.LI-N* 'singing, song; chaunting' 2.. (Chaunting is a variant of chanting, in English –HF)

R94 pPN **rungka-* 'cry'. WLM *lu-ngu* 'to cry' (IMPERATIVE *lu-ngka*) 'cry; mourn; grieve; wail' 4; NGJ *RUNGGA-L* 'roar (thunder)' 3; pCK **yungki-* 'cry' 4; pP **rungka* 'cry' 5 (Hale 1976a-c); URA *rungka-* 'cry' 5; UMP *ungka-* 'cry, miaow' 5; WAK *tungka-* 'cry' 5; WRJ *yungkaa-y* 'cry' 5; WNB *lunga-* 'cry' (in error for */lungka-/*?) 4; BNG (Bunganditj*)* *lung(k)a* 'cry' 4.

Hendrie (1990) reconstructs **runga-* ~ **rungka-* at the pPN level.

**runga, *runga-* and **rungka-* probably all have a common origin, at least in a pre-Pama-Nyungan epoch.

Residue: YIM *wungka* N 'cry, weeping, animal's call' with unexpected *w-* for **r-* 3. From the viewpoint of phonology, GID *tunga-* 'cry' 4, GUM *tuu(ng)* 'cry' 4, NGI *yunga.kirri* 'cry' 4 and IOR *DUNGA-*'cry' 3 would all be reflexes of **runga-*, since I am not aware of any rule that would have deleted the **k* in old **-ngk-* clusters. YAR *RONGGU.MMU-N* 'barking ..as a dog' 3, on the other hand, is semantically more akin to **runga-*.

R95 spPN **rUnyu* 'ripe, cooked; mature'. PIN *runyu.runyu* 'ripe, well cooked' 4; GYA *tunyu* 'husband' ("mature(man)") 4.

The evidence of YDN *kurri* 'raw, unripe' and of NYA-S *kurri* 'young woman who has not yet had children' (< pPN **kUrri*) enables the PR for this set to be raised from 2 to 3.. Koko Bera (KBR) *pinya* 'ripe' and WMK *piny* 'father's older brother (FaElBr)…' (<pP **piinya*) provide justification for a further increase to a '4'.

R 96 spPN **rUpa-* 'hunt down'. PIN *rupu-ngu* CRS 'see' 4; YDN *tupa-N* 'hunt down, run down' 4. The semantics of this set is bolstered by spPN **jaju* and pNG **wiya-* (O'Grady 1998:220).

R97 pPN **Rupa-* 'take' Metathesized reflex in NYU-N *DJABBU.N* 'pick up, take up' 3; YOR (Yorta-Yorta) *lupa* 'carry' 3. Justification may eventually be found for uniting **rUpa-* and **Rupa-*.

R98 spPN *rUpu* 'stomach'. YAN *(nta)-rupu.n* (your) protruding abdomen' 4; YDN *tupu.rr* 'stomach, bowels; front of shield' 4.

R99 spPN **rup*V- 'swallow'. WLP *lupa.ri.pa* 'greedily, hungrily' 4; WMK *thu'-an* 'swallow' 3; DYI *rupi-y* Vintrans. 'eat (meat)' 4; NYW *rupi-L* 'swallow' 4.

R100 pPN **rurnyja-* 'suck'. WLM *runy.ma-nu* 'suck' 4; WRG *rurnyja* 'suck' 4; BAA *thunji-* 'suckle' 4. Concerning the phonology of the WLM form, see O'Grady and Fitzgerald (1995:463). For further examples of the reflection of *r- in BAA as *th-*, see **raapa-l* and **rirrku(l)*.

Residue: GUM *yiinyja* 'bite' 2.

R101 pNYY **rurra* 'sand'. Hendrie **rurra*. KAU *WORRA* 'sand' 3; GUP *rurru,rr* 'sandy or earthy area' 3.

R102 pPN **rUrra* 'decayed'. WLP *rurru.ny.pa* '…worn out…' 3; YDN *turra* 'hookworm' 3; YAR *RORA.RI* 'rotten' 3.

R103 pPN **ruurri-* 'move, shake'. Hendrie **rurri-*. NYA-W *rurri-nyi* Vintrans. 'move' 5; NYA-L *rurri.ngu* 'restless' 3; WLM *rurri.ny* 'jerking…' 3; WRN *rurri.ma-nyi* Vintrans. 'move' 5; GRD *yurri-* Vintrans. 'move' 4; PIN *yurri-ngu* 'move, wiggle' 4; GUP *rurr.'.rurr.yu-n* 'shake' 3; possible doublet in GID *yuuti-* 'move' 4, *turra-* 'shiver' 2; YAR *RORA.L.GARI-N* [Vtrans.] 'shaking' 3,

Residue: Probable increted deverbal form in YDN *turr.k.u.mpi* 'child's swing' 3;

R104 pNYY **rurrku-* 'wash'. WLM *luku.rr.pu-ngu* 'wash' (with haplology subsequent to the *–rr* accretion?) 3; PIN *rurrku-rnu* 'cause a rumbling noise' 1' PNK _YURKA_ 'sandy seabottom' (<"washed clean"?) 1; NGL _jurrka-n_ 'rub' 2; GUP _rurrgu.yu-n_ 'wash' 5; DJP _rurrwu.yu-N_$_2$ 'wash' 5; RIT _lurrgu.'.yu-_ 'wash' 4.

R105 pDN *_rurrnyu_ 'soft'. WLP _rurrnyu_ 'soft, pulverized' 4; GRD _runyu_ 'soft'. In the Western Desert language, the _–rr-_ in *_murrngu_ 'fly' is lost in Warburton Ranges (WRA) _muungu_. Note also YDN _takul_, from pPN- *_rArrku(l)_ 'three'.

R106 pNYY *_rurru_ 'dodging; avoiding'. Hendrie *_rurru-_. NYA-S _rurru.rurru.pi-ni_ 'dodge, avoid; shape to hit someone, but don't' 4; WLP _lurru.wanti-mi_ 'duck down .. to conceal oneself' 4; GUP _rurru.k.mara-ma_ 'brush against' 1.

Residue: increted form, possibly influenced by the _–p-_ of _–lapa-_, in WLM _lurr.p.lapa-rnu_ 'run, deviating from path; dodge' 3.

R107 spPN *_rUrru_ 'rushing, darting'. Reduplicated form in NYA _rurru.rurru_ 'hornet' 4; WLP _rurru.rurru_ 'dashing, darting…' 3; YAN _rurru.rurru_ 'Black Water Betle' 2; KLY _-RUR_ [only in the compound _GA-RUR_ 'a small wasp' _(GA_ 'a tree wasp (hornet)')] 4; WMK _uu'_ [in _uu' ngeengk-an_ 'rush to something'] 3. *_rurru_ and *_rUrru_ are quite possibly one and the same.

R108 spPN *_ruwa_ 'old, POTENTIALLY erased … as of footprints'. Hendrie *_ruwV_. NYA-W _ruwi.nyji.ruwi.nyji.ji-ni_ 'wash away … erode' 3; PIN _ruwa_ partly obliterated – of footprints that have almost disappeared' 4; GUP _ruwu.k_ 'old, stale (eggs, footprints)' 4; metathesized form in UMP _wu'u.nga-la_ 'smoothe it out, erase it ..as mark in sand' 3.

R109 spPN *_rUwa_$_1$ 'empty'. WLP _ruwa_ 'nothing, empty, void of' 4; GUP _ruwa.ngga_ 'light, empty' 5; DJP _ruwa.ngga_ 'light' 5; YAN _ruwa.ji_ 'salt water creek' (< "devoid of (potable) water"?) 3; antonymic development in YDN _tuwu.rr.ji, Ja,_ 'full' 3.

*_ruwa_ and *_rUwa_$_1$ are quite possibly one and the same root..

Residue: Form with unaccountably altered vocalism in PIN _riwa_ 'season when there are no kangaroos…3; YDN _tiwu.rr_ 'blue sky ' (< "empty"?) 1.

R110 Conceivable spPN root *_rUwa_$_2$. WLM _ruwa_ 'short trip …walkabout' ("journey over the land") 2; DYB _ruwa_ 'west' 1; YAR _RUWE_ 'land' 2. Alternatively, the prehistory of the DYB form could be bound up in some way with pP *_kuwa_ 'west'

R111 pPN *_ruwa-_ 'dig'. YAN _ruwa-ntharra_ 'digging' 5; GID tuwa- 'dig' 5; WAA _tuwa-_ 'dig, bury' 5.

R112 pPN *_rUwa-_ 'twist, turn (hence, e.g., throw, hurl)'. Hendrie *_ruwa-_ ~ *_rungka_. NYA-W ruwi-nyi alternating with rarely used metathesized dissimilated variant _yuri-nyi_ 'hit with missile, shoot' 5; WLM _luwa-rnu_ 'hit with a missile; grind (as seeds)' 5; WLP *luwa-rni* ...shoot, throw at, pelt...' 5; metathesized variant **wura-* in WIR, MRN, NAN *wura-* 'hit with missile, shoot' 3; PIT *tuwa-* 'hit with a missile' 5; KLY *RUA-I* 'tack, go aside, go aslant' 3; JGY *tuwa.rri-l* Vtrans. 'shake' 3.

In the act of throwing, a human being turns the body. The corresponding semantic development 'turn' -→ 'throw' can be further illustrated from Germanic: the pIE root **ter-$_2$* 'rub, turn' in an extended form, **tree-* [macron-e], evolved into pGmc **threew-* and Old English *thraaw-an* 'turn, twist', which in turn became Modern English 'throw'. (The Modern German reflex, *drehen,* still means 'turn'). Further, the pIE root **wer-$_2$* 'turn, bend' in the extended form **wer.b-*, ultimately became English '*war.p'* and German *wer.f-en* 'throw'.

The semantic relatedness of 'throw' and 'shake' is corroborated in Australia in PNK *WAKU-TU* 'throw up or out' versus YAO *waki-nya-*na Vtrans. 'shake' and PIT *waki.li* V-intrans. 'shake'. Note also PIT *wangku.ma* V-trans. 'turn, swing around; stir ("turn")', from spPN **waku-* 'turn'.

**ruwa-* and **rUwa-* are quite possibly one and the same root.

Residue: Prenasalized forms in YUL *yungka-rnu* 'hit with misille, shoot' 3; PIN *rungka-rnu* ~ *yungka-rnu* 'throw, grind seed, rub, saw' 4; WIM *yungka-* 'throw' (apparently independent of WD) 3.

R113 spPN **ruyu* 'NEGATIVE'. WLP *ruyu* 'untruth, lie' 3; WRG *ruyu* 'playing around' 3.

R114 spPN **rUyu* 'wake of fish or boat'. GUP *ruyu* 'trail left in water by fish or boat' 4; YAN *yuyu* ~ *wuyu* 'mark; track; wake of a boat', *na-wuyu* 'track of animals; curve of rainbow in the sky; patterning of birds' feathers/lizards'/snakes' skins; wake, of boat', 4, *(nta)-wuyu* (your) body imprint ..as in sand' 4.

*M-

The reconstructions in **m-* presented below include, in skeletal outline, those given in O'Grady (1990d).

M1 pA ***maa-N*** 'to grasp, hold in the hand' (Capell 1956, Dixon 1980). NYA, WLP, PIN, KAU, PAY, GUP, YIM, GID (metathesized), OG 1990d:79).

M2 spPN **majay* 'fleshy part'. NYA-W, GUP, RIT, YDN. OG 1990d:79.

M3 pPN **maji-* 'grasp, take'. Probably ultimately related to M1. PIN (prenasalized), KAU, UMP, YIM, GID. OG 1990d:79.

M4 spPN **maaju* [a large marine life form]. NYU-N, pK, GLP. PP (*maaju.rr*), UMP (and YDN?). OG 1990d:79-80.

M5 spPN **maka*$_1$ ‘dry’. PIN, GUP; YDN (antonymic development). OG 1990d:80.

M6 pPN **maka*$_2$ ‘leg, thigh’. NYA, KAU, GUP, UMP, GID. OG 1990d:80.

M7 pPN **makul* ‘dream, hallucination’. NAN *maku.r(t)a* ‘dream’ 4; GUP *maku* ‘maybe, perhaps’ 4; UMP apparent antonymic form *maku* ‘true, indeed’ 3, and WMK *mak ~ mok* ‘let it be’ [< truly will it be?] 2; GID *makuul* ‘imagination, hallucination’ 4. For the semantics, cf **kUnya(n)*. OG 1990d:80.

M8 spPN **mAkul* ‘head’. YGD *maka* ‘head’ 5; BDM, WJI *maka* ‘head’ 5; NUN *makul* ‘head, hair’ 4.

Residue: WIR *kaka* ‘head’ 2, with assimilation of **m-* to **-k-?* KAU *‘MAKA.RTA’* ‘head’ is an apparent typo for *MUKA.RTA*, a different etymon. [Editorial Note: Conclusion is that *MUKA.RTA* does not mean ‘head’? –HF]

M9 spPN **mala* ‘right-handed, dextrous, expert’. WLP *mala.marri* ‘good hunter’ 4; JIW *mali-ya* ‘expert’ 4; UMP *mala* ‘front flipper of turtle’ 3; WMK *mal* ‘right side’ 4; YIM *mala*** ‘right hand, or foot’ 4; GYA *mala* ‘expert, good at’ 4; YDN *mala.nU* ‘right-hand’ 3; YY *mal* ‘right side’ 4; WRI *mala* ‘hand (lower), arm, branch’ 3; GNY *mala* ‘arm’ 3; MRG *mala* ‘wing’ 3.

Note that pPN **marang* ‘hand’ (Capell 1956) is an etymon that should be kept entirely separate from **mala* within the Pama-Nyungan context. The two forms may, however, have a common origin in an extremely ancient, pre-Pama-Nyungan, epoch – conceivably tens of millennia in the past.

[We stand humbled by the thought that the system of phonological contrasts in the speech of the very first humans to cross Wallace’s Line eastward bound – seventy millennia ago! – must forever remain lost in time].

M10 pPN **mAlim* [a kin term]. WLM *mali* ‘mother-in-law’ 4; WLP *mali.rdi* WMB (WiMoBr) 5; PIN *mali.rti* ‘mother-in-law or her brother’ 5; KAB *malim.pan* (for **malim.kan*) ‘wife’ (song word) 3; IOR *MALA.RRA* ‘married’ 3.

M11 spPN **mAlka(n)* ‘still, unmoving’. WJI *malka* ‘..fast (asleep)., ...still (unmoving), silently...’ 3; YDN *malkan* ‘fine weather’ 3.

M12 pDN **malpu* ‘malevolent spirit’. NYA-W *malpu* ‘inimical spirit dwelling 16 km east of the Desert Bore’ 5; NYA-S *malpu* ‘devil’ 5; NYA-L *malpu* ‘evil spirit, devil’ 5; PIN *malpu* ‘evil spirit’ 5; PNK *MALBU* ‘murderer...’ 4. Diffusion is a possible factor here. Furthermore, pDN **malpu* may be a descendant form of **malung* (see), with contentless **p*-incretion.

M13 spPN **mAlpV(n)* bend. WLP *malpa* ‘hip; plain boomerang’ 3; GYA *malpin* ‘leg between knee and thigh’ 3.

M14 pPN _*malung_ 'shade, spirit' (putatively a loan from proto-Eastern Oceanic _*malu_ 'shade, shadow'. See O'Grady and Tryon 1990. Note pDN _*mal(pu)._ NYU-N _MALLO, malu_ 'shade' 5; NAN, NMA _malu_ 'shade'. 5; GUP _mali'_ 'shadow, photo, image' 4 (with unclearly motivated fronting of _*u;_ but cf GUP _mani_ < _*manu_); YDN-T _malu.way_ 'spirit, shadow' 5; GID _malung_ 'shade, shadow' 5; IOR _MALUNG_ 'dark' 4.

M15 pPN _*mAlyja_ 'branchy, forked, bifurcating, splayed'. WLP _malja.rla.wu.rla.wu_ 'branchy …, outstretched, splayed..'3; KAU _MALTA_ 'beard' 3; PNK _MALTA.RRA_ 'bunch of emu feathers…' 4; GNL (Ganalpingu) _maltja.n̲a_ 'two'; BAA _maltha.rra_ 'feather, down feather' 4. The semantic evolution of the GNL term for 'two' from *FORK(ed) should be considered in the light of J128 _*jarra(n, ng)_, and _*yAka._

M16 pNY _*malyji_$_1$ 'man, male'. WLM _malji_ 'male' 3; WIR _maji.ja_ 'man' 3. The implied loss of _*l_ before _*j_ in WIR requires confirmation – hence the PR of 3 only.

M17 pNYK (Karnic) _*malyji_$_2$ 'cool'. NYA-W _malyi.malyi_ 'strong cool wind blowing from an area of rain' 3; PNK _MALTI_ 'darkness, night ("cool") 3; WIR _malthi_ ~ _malji_ 'night' 4, _malthu.lu_ 'tomorrow, yesterday' 3; DIY _malhthi_ 'cool' 4; PIT _malhthi.tha_ warm' 3. The semantics of this set is partially paralleled in the derivatives of PIN _munga,_ a variant (nasalized) reflex of spPN _*punga._

M18 spPN _*mAlyu_ 'no, not'. NAN _malya_ 'no, not' 5; GYA _maja.rr_ 'lazy, no good ' 3 (with regular development of _*-ly-_ > _j_); pKAR _*walya_ 'no' 3 (with rare sporadic shift of _*m-_ to _w_, but note JIW _wara.ny.ma_ 'vegetable food < spPN- _*maara_); PIT _malhu_ 'no, not' 5.

Residue: NYA _*-p-_increted form with enlargement _maly.p.a.rr_ 'averse (to) 3.

M19 pNYY _*mama_ '[part of] egg'. NYU-N, GUP. OG 1990d:80.

M20 pPN _*mAma-_ 'hold, take, grab'. WRY _mama-ru_ 'hold; grab; catch; grasp' 5; JIW _mama-ru_ 'hold; take; grab' 5; pCK _*mama-_ 'take back' 4; WMK _mam-an_ 'hold, touch; take, accept; learn; knead' 5; YY _mom_ 'grab, seize; catch; hold; fit (spear to spearthrower)' 5;WOI _mama-_ 'hold, grasp' 5.

Residue: KLY _MAMA.L_ 'beloved, careful' [e.g., in holding baby??) 2.

M21 pPN _*maamang_ 'father, FA'. NYA _(mama.ji_ older brother, ElBr), PIN, NYU, PAY, GID, WEM. OG 1990d:80.

M22 spPN _*mAmpu(l)_ 'lump'. KAU _MAMPA_ 'knee' 4; GUP _mamu.l̲'.yu-n_ 'put in mouth whole (not bite) ("put a lump in"?) 3; WAK _mampul_ 'lump, plump, fat or strong (like a hand), fist' 4. For further indications of the shift *LUMP → 'knee', see *m_Urtuny_ and _*mUku._

M23 pNYY *_mamu_ [original referent unclear]. NYA-W (crabhole, pothole) (in loam country) 3, NYA-S (devil), PIN (evil spirit…), GUP (water). OG 1990d:80.

M24 pPN *_manal_ [cooked? uncooked?]. GUP (unripe, uncooked), GID (ripe, cooked). OG 1990d:80.

M25 pPN *_mAnga-_ come. Probable PNK metathesized form _NGAMMA-TA_ 'go, run, come' 3, and possibly likewise in pWK *_ngama-_ 'sit' [< "arrive and sit down, camp"?] 2; KLY _MANGI_ 'come, arrive' [with a derived form meaning 'meet' – cf the semantics of NYA _kaja-rna_] 4; YDN _-manga-l_ VERBAL COMITATIVE 4; BAA _manga-_ 'make, build, fix up, cure' (semantically somewhat problematic) 2.

M26 spPN *_mAnga(n)_ 'woman'. WLM , DJR _manga_ 'girl' 5; NMA _manga_ 'woman' 5; BUL _mangan_ 'woman 'woman' 5 (Tsunoda, personal communication). This set illustrates once again the retention of a final nasal in parts of the East (Dixon 1980, with maps), as against its loss elsewhere.

Residue: GID _manga.rreem_ 'egg'.

M27 spPN *_mAngka_$_1$ 'nest'. NYA-W _mangka_ 'circle of bushes used for concealment in hunting' 4; WLM _mangka.ja_ 'shelter for wet season in the desert' 4; NAN _mangka_ 'nest' 5; pNG *_mangka_ 'nest' 5; KLY _MANG_ 'fork' [ref to forked branches] (< "POTENTIAL nest site"?) 3 (but *_maaga_ is the expected outcome, cf pPN- *_mungka_ 'anthill' > KLY _muugu)_; see, however, the KLY reflex of *_mangka_$_2$); YDN _mangka_ 'nest of bird or turtle 5.

Residue: YIM _mangka_ 'excrement' [characteristic of nests] 1. YY _thap_ 'nest', UMP _thapa_ 'forked stick' and, possibly, KLY _RAB_ 'mast' [made of a forked branch?] as well as WRG _rapa_ 'forked stick, fork of tree' (< *_rapa_) provide semantic support for the etymology of KLY _MANG_ proposed above. OG 1990d:80.

M28 spPN *_mAngka_$_2$ 'hair, fur'. PIN _mangka_ 'head hair' 4; NYU-N _mangka.rra_ 'hair' 5; NYU-E _mangka.rr_ 'hair' 5; KLY _MAGA.D, maga.dh_ 'hair of animal, fur (where the sound change *_ngk_ > _g_ is regular) 4. Since some NESTS may be lined with animal FUR, the latter may be viewed as a POTENTIAL nest. In this case, M28 and M27 could appropriately be united. OG 1990d:80.

M29 pNYY *_mangka.lya_ 'age-mate, companion'. NYA, PAY. OG 1990d:80

M30 pY *_mangku_ 'blood, sap of tree. PAY, GUP. OG 1990d:80.

M31 spPN *_mAngkVny_ 'girl, early teenage'. WLM-E _mangku.rla_ 'girl, early teenage' 4; YIN _mangku.rla_ 'child' 3; WMK _maangk.am_ 'man who has not been through initiation dances' 3; BIR _mangkany_ 'young girl (12-13 years)' 4.

M32 pPN ***mangu*** 'eye, seed, point of light'. PIN, PNK, PAY, GUP, GID. OG 1990d:80.

M33 pPN ***mAngu(n)*** 'Dreamtime, Law'. NYA *Mangu.ny* 'Dreamtime, Law' 4; WLM *mangi* (with obscurely motivated shift from ***-u to i*) 'spirit or essence of a person which remains when he has gone; presence' 3; GUM *maangun* 'mind, law' 4.

M34 pNYK ***manka*** 'mark. KAU *MANKA* 'elevated scars on chest…' 5; PNK *MANKA* 'dots, tattoo scars' 5; pKR ***malka*** 'mark' 5 (with regular sound change – as also in J81); DIY *malka* 'mark, stripe, spot' 5.

M35 pNYK *'mankamanka* 'striped'. KAU *MANKA.MANKA* 'striped' 5; pCK ***malka.malka*** 'striped' 5.

M36 pPN ***mankarr*** 'hard, hardwood'. NYA, NYU-N, RIT, GID. Residue: PIN. OG 1990d:80.

M37 pNYY ***manta-*** 'join, link, entwine'. NYA, PAY, GUP, RIT. OG 1990d:81.

M38 spPN ***manu*** 'neck, throat, seat of emotion'. GUP *mani* (with obscurely motivated shift from ***-u to i)** 'neck, creek' 3; pCK ***manu*** 'mind' 4; PIT *manu.wanyji* 'angry' 3; pP ***manu*** 'neck, throat' (Hale 1976a, b, c) 5; URA *manu* 'throat' 5; WMK *man* 'neck' 5; JGY *manu* 'throat, neck' 5.

Residue: PNK *MANU N* 'back' 1; MDI *ngani* 'neck' 2. A labial-to-velar shift also occurs in reflexes of **laapa-* and *rApa$_1$.

M39 spPN ***mAnya(l)*** 'wet'. KAU *MANYA* 'cold; rainy' 4; GUP *mänha* 'watery' 4; M-KU *manya* 'mud' 3; WAK *manyal* 'wet' 4.

Residue: WLP *manya* 'soft' (< "mud-like"?) 1.

M40 pPN ***manya(rr)*** 'hand'. NYA, PAY, WGK. GID, L-HND (Lake Hindmarsh). OG 1990d:81.

M41 pNYY ***manya.rr*** 'mouth. NYA, PIN, RIT. OG 1990d:81.

M42 pNYY ***manyja*** 'water'. NGL *manyja* 'thirsty' 3; JIW *mantha* 'mist'; GUP *manhdha.k* 'fresh (water)' 3.

M43 spPN ***mAnyja*** 'man'. pM ***mantha.rta*** 'man, human being' 5; JIW *mantha.rta* 'man…' 5, *manyji.ra* 'old; old man' 4; *mantha.rli* 'heavy' 3; WMK *manth-thayan* 'old important people…' (in which *thayan* is 'strong, hard'..) 3.

M44 spPN ***mAnyja-*** 'eat'. MLP/GAL *manyja.li* 'bread' 3; YDN *manyja-N, Ja* 'eat' 5; NGW *mantha* 'eat, drink' 5.

M45 spPN _*manyjal_ ‘name’. PIN _manyji_ ‘name’ 5; KAU _MANTI.NDA_ skin’ 3; UMP _manthal_ ‘name’ 5.

M46 spPN _*mAnyjal_ ‘Death Adder’. PAN _manyji_ ‘Death Adder’ 5; GUP _mäny_ ‘trail (of snake, of jet plane)’ 3; WMK _thuuk manch_ ‘Death Adder’ (_thuuk_ = ‘snake’) 5; YDN _manja_ ‘culprit; guilty’ 2; MAN _manjal.am_ ‘sand goanna’ (with antonymic change) 3.

M47 pNYK _*mAnyji_ ‘wet’. NMA _manthi_ ‘wet’ 5; NGL _manyji_ ‘wet’ 5; pCK _*malthi_ ‘cool’ 4, with regular shift from nasal to lateral – see J81 and M34-35.

Residue: WLM-S _maljurru_ ‘cold’ 1; NGI _mathaa_ ‘wet, damp’ 1. DIY _multhi-_ (sic) ‘to wet, be wet’ 2.

M48 spPN _*mAnyji-_ ‘light (a fire). NYA, WLM, YY, NGW, GGL (Gangulu). See OG files.

M49 spPN _*many(j)u_ ‘sp. ant’. PIN _manyu.ru_ ‘ant (generic) 3; GRD _manyu,rru_ ‘black ant’ 3; NGL _manyju_ ‘sp. termite ..in timber’ 5; JIW _manthu.rru_ ‘termite, white ant’ 5; GYA _munju.rr_ ‘green ant’ 3.

M50 spPN _*mAnyka_ [a kin term]. PNG _*manyka_ ‘son’ 3; YDN _manka_ ‘cross-cousin (with regular change of _*ny_ > _n_ before a non-coronal) 3.

M51 pPN _*mAnyung_ ‘soft, slack, tired’. NYA, WLP, GUM. OG 1990d:81.

M52 pPN _*mapa$_1$-_ ‘rub ochre into the body, anoint; adorn, illuminate’. PIN, NGL (‘sun’), GUP, UMP, GID (with metathesis). OG 1990d:81.

M53 pY _*mapa$_2$-_ ‘give, put’. PAY, RIT. See OG files.

M54 pPN _*mapang_ ‘old man’ (< ‘one who rubs, anoints’ ? – see at _*mapa$_1$-_). NYA, WLP, PIN, KLY, pP (with metathesis), GID. OG 1990d:81.

M55 pNYY _*mapu$_1$_ [a faunal term]. KAU, PAY.OG 1990d:81.

M56 pPN _*mapu$_2$_ ‘good, good to the taste’. GRJ, NYU (‘skin’ < “tasty part”), UMP (fat, grease), THN. OG 1990d:81.

M57 pPN _*mApV_ ‘egg’. GUP, GUM. OG 1990d:81.

M58 pPN _*mara-_ ‘touch, feel’. PAY, pGY (_thama-_ < _*rama-l_ < _*mara-l_) See OG files.

M59 pPN _*mAra_$_1$ 'spider' (perhaps < "all fingers" – hence as one with M62 ? – cf Donaldson 1980). PIN _(mara.pul-pa)_, KLY _(MA)_, NGI _(maramara.ka),_ DIY _(mara.n.karrha_, where _karrha_ reflects pA _*kArra_ 'spider'). See OG files.

M60 pPN _*mAra_$_2$ 'lacking, without'. NYA, WLP, PIN, KAU, NYU, GUP, YIM (maar.k.a..n.ku), GID. OG 1990d:81.

M61 pPNT _*mAra_$_3$ PAST IRREALIS (Quite possibly as one with M60). NYA, YUL, PIN, KAU, WIR. Also in non-Pama-Nyungan Lardil. OG 1990d:81.

M62 pA _*marang_ 'hand'. Capell (1956) _*marang_. NYA ('fire saw' < "hand-held implement"), WLM-M _(marla)_, WLP _(marla_ 'outstretched hand'), PIN, KAU, NYU, pNG, GUP, pKAR, DIY, pP, YIM, NGI, BAA, 'Upper Glenelg' _(MARRANG)_. Also in non-Pama-Nyungan Nunggubuyu _(marang)_ and in LRD. OG 1990d:81-82.

M63 pDN _*mari_ 'east. WLP _mari.l.pi_ 'moon' 3; KAU _MARI_ east' 3. Semantic roles are reversed in WLP _kakarra.ra_ 'east' 3 and KAU _KAKIRRA_ 'moon' 3 (also DYI _kaka.lum_ 'moon' 3), from spPN _*kAki_ 'moon'. Fitzgerald 1997a:71.

M64 pPN _*mAriny_ [a term in the Domain of Human Classification]. NYA-L _mari.rri_ 'dyadic kin term: brother and brother-in-law' 3; WIR _mari.ya_ older brother, ElBr' 3; PAN _mari_ 'younger sister, YoSi' 2; RIT _märi-_ 'mother's mother, MoMo' 3; pCK _*mardi_ 'heavy' 3; WRI _mari_ 'Aboriginal man, people…' 5; NGI _mayi_ 'Aboriginal person' 5; WRJ _mayiny_ 'person' 5.

Residue: KLY _MARI_ 'spirit, ghost; shadow' 1.

M65 pNYY _*mAri(mari)_ 'leech'. NGL _mari.mari_ 'freshwater leech' 4; JIW _mayi,ny.mayi.ny.ku.ra_ 'leech' 4; GUP _mari_ 'trouble' 3, _mari-mirri_ 'angry, troublesome' 3, _mari.ngu ~ miri.ngu_ 'enemy, germ' 3.

Residue: possibly UMP _may'i_ 'octopus' 2. See OG files.

M66 spPN _*mAri(ny)_ 'mosquito'. WMK _me'_ 'mosquito' 3.

Residue: increted forms in GRD _marl.p.u.n,_ YDN _mar.p.iny_ 'mosquito' 3. See OG files.

A future uniting of M65 and M66 is conceivable, especially since both LEECHES and MOSQUITOES characteristically fasten on to the skin and suck blood. (Alix O'Grady, personal communication).

M67 pNY _*marlpa_ 'man, person' WLP _marlpa_ 'company, companion …, jointly' [5]; PIN _marlpa_ 'friend, relative' [5]; MLB/GAL _malpa_ (sic; in error for _*marlpa_ ?) 'man' 4; PAN _marlpa_ 'man, person, human' 4.

Residue: BIR _malpa.rra_ 'koala (bear –HF) 1. See OG files.

M68 pNYY **marnku* 'three, a few', PAUCAL[1]. WLP, PIN, KAU, PAY. Residue: UMP (*mangku*). OG 1990d:82.

M69 pNYY **marnma* 'sore, pain'. NYA, PIN, GUP. OG 1990d:82.

M70 pNY **marnti*$_1$ 'male'. NYA (*marnti.yarra* 'father-and-son'), PIN ('male…'), NYL ('father'). OG 1990d:82. This form is quite possibly a prenasalized variant of M64.

M71 spPN **marnti*$_2$ [term related to locomotion]. NYA *marnti N* 'walking, travelling' 4; GNG *manta-* 'walk, go, come' 4; GEY (?) *manti-* 'run' 3. See OG files.

M72 pPN **mA(r)ntu* 'meat, animal'. WLM *mantu* 'stink; bad smell' 5; YUL *mantu* 'rotten' 5; pNG **mantu* 'meat' 4; WRI *manta* 'bread, food. Fruit' 2; MDI *marntu* 'flesh, meat, creature, person' 4. For confirmation of the semantic connection between 'meat' and 'bad smell', cf **minyang*. See OG files.

M73 spPN **marnu* 'cavity. NYA-W (*marna* 'bottom –as of bucket'); PIN (*marna* 'bottom; a person's seat or the base of an object'); PAY (*marna* 'cave'); GUP (*mani* (sic) 'neck, creek'); WGK (*marna* 'mouth'); pP (*manu* 'throat'); WRI (*manu* 'neck').
Residue: YDN (*manu* 'top of tree') (antonym?). OG 1990d:82.

M74 spPN **mArpu* 'one's own'. PNK *MALBU* 'author, owner' 3; YDN *marpu* 'one's own' 3. See OG files.

M75 pPN **marra* 'fine weather sky'. NYA, NYU, GID. OG 1990d:82.

M76 pPN **marran* 'wing, hair'. WLP, PAN, GUP, RIT,YIM, BNJ, WAA ('bird'). OG 1990d:82.

M77 spPN **marrka* [a sibling term]. NYA, PIN, pNG?, YDN, OG 1990d:82.

M78 spPN **marrku* 'hard, vigorously, strongly'. NYA (with obscurely motivated *j* for **k*); PIN, GUP, RIT, UMP. OG 1990d:82-83.

M79 spPN **mArrku* 'sp. possum'. GUP, RIT (with *ng* for **k*); YDN; possibly NYA (*Marrngu* 'Aboriginal person'). OG 1990d:83.

M80 pNYY **marrkV-* 'wait'. WLM *marrku.ka-nu* 'prevent someone from going ("cause to wait") 3; PIN *marrku-rnu* 'persuade…detain' 3; JIW *marrka-rri.a* 'wait, wait for' 5; Yandjinang (YNJ) *marrga-m* 'wait for' 5.

---

[1] PAUCAL is a neologism, coined in Australia or Victoria, BC, and ostensibly meaning 'few' --HF

Residue: GUP prenasal-grade form *marrngga-ma* 'wait' 4; pCK **marrka-* 'crawl' [crawling implies waiting from time to time, e.g., in creeping up on game] 1. See OG files.

M81 pPN **mArtay* 'cold'. KAU *MARTA.NE-NDI* 'to be cold; to starve' 4; YDN, *Ja matay* 'water' 3; YDN *mati* 'rain' 3.
Residue: MUR prenasal-grade form *marnta* 'cold' 4. See OG files.

M82 pPN **maartu-* 'vomit'. NMA *martu.l.ka* 'pregnant' 3; NYL *martu.ra.rri-* 'vomit' 4; UMP *maati-* 'vomit (with unmotivated shift of **u* to *i*) 4.
Residue: BAA prenasal-grade form *marnta-* 'vomit' 3. The possibility exists that YDN *mati* 'rain', listed under M81, belongs with M82, rather.

M83 spPN **mAru(n)* 'dark in color, black'. WLP, PIN, PAY *(maru.maru* 'dark', *maru.purra* 'morning, tomorrow'.. for the semantics, see at **punga*, pWK, YDN ('cloud').
Residue: NYA prenasalized enlarged form *marntu.ngu* 'morning, tomorrow', cf PAY *maru.purra,* above.

M84 pDN **mata* 'knee'. WLP, PIN, KAU. OG 1990d:83.

M85 spPN **matan* 'mud, clay'. NYA-W, UMP, YDN ('soft')
Residue: PIN prenasalized form *manta* 'dirt, ground'. OG 1990d:83.

M86 pPN **mAwi* 'poison'. WLM. WLP *mawu.ya* 'poison' [5]. [5]; GUP *mäwi.ya* 'poison' [5]; BAA *mawi* 'poison…' 4. OG files.

M87 spPN **mawi(l)* 'black'. PNK *MAU-U.RR*U 'dark, black' 3; PAY *mawi.ri* ~ *mawu.ri* 'snake' 3; YAO *maw'i* 'leech' (with unexplained intrusive glottalic element) 3; GYA *mawul* 'small sp. freshwater eel' 3; WAK form with putative antonymic semantic development *mawi* 'white man; ghost; white' (OG's emphasis) 3. The naming of leeches for their blackness is suggested also in reflexes of **miija(n)*. See OG files.

M88 spPN **mAwu* [a container]. WLP *mawu* 'bladder' 3; BAK *mawu* 'coolamon' 4; GYA *mawu* 'coarse grass used in making dilly bags' 4. See OG files.

M89 pPN **mawung* 'call, cry (of an animal)'. THL, GID. OG 1990d:83.

[-- NYU-N *maya* 'shelter, hut, house'. See **pAya(n)].*

M90 spPN **mAya* 'right hand'. pNG **maya* 'right hand' 5; YAN *maya* 'right side' 5. See OG files.

M91 spPN **mayay* 'language'. MRN *maya-ma* 'speak' 4; NYU-N *MYA* 'the voice' 4; GUP *maya.li* 'meaning' 3; M-KU *mayi* 'speech, language' 4; WRG *mayay* 'language (everyday style) 4. See OG files.

M91b pA **mayi* 'veg food' ...

M92 pDN **mayu* 'key person (in a given social context)'. NYA-S, PIN, KAU. OG 1990d:83.

M93 pEPN **miija(n)* 'black'. PIT *mitha* 'charcoal' 3; WMK *miich* 'leech' 4; GYA *mijan* 'wart' 3; YDN *mija* 'black' 4. In M87 we also have a pointer toward leeches being named for their blackness. See OG files.

M94 pPN **miiju* 'skin'. pNG **miji* 'blood' 3; YAR *MITYE* 'name' 5; MLY (Malyangapa) *miiji* 'name' 5. See, however, **miju* in OG 1990d:83; also competing reconstruction **miki*, below.

M95 pPN **mij*V_1 'rain'. NYU-E *mija.l* 'rain' 4; JIW *mithi.rri.ny* 'Lyons River' 3; GUP *mithu.k* 'dew, fog, mist, spider y' 3; GNG *mida.r* (sic) 'fog' 2; 'Mount Hope' *MITHA.P* 'rain' 4; WEM *mithoe.k* 'rain' 4. OG 1990d:83.

M96 pPN **mij*V_2 'navel'. WLP *miji.li.ji.li* 'navel' 4.
Residue: prenasal-grade form in WOI *minydhu.k* 'navel' 4. See OG files.

M97 spPN **mikany* 'hollow, hollowed-out container'. WRY *mika* 'coolamon' 3; GUP *mewa.na* 'grass, basket...' 3; MAN (Manandjali) *mikany* 'hole or hollow in a tree' 3. See OG files.

M98 pSEPN **miki* 'name'. PNK *METYE* 'name' (diffused from NE?) 4; YAR *MITYE* name' 5; BAA *miki* 'name' 4; MLY *miiji* 'name' 5. This root is perhaps ultimately derived from spPN **pikar* 'dream' through initial nasal gradation. See OG files.

[Needless to say, much more work needs to be done towards the unravelling of the semantic shifts (and their directionality) among skin, fat, blood, red, headband, egg, lice, nit, brain, water, rain, fog, penis, name, person, male, male child, father, mother's brother, and thou. This writer, GN O'Grady, feels that he needs to rethink his contribution to the project. He appeals especially to Nick Evans and David Wilkins to continue to lend their intellectual strength to the fulfillment of this eminently worthwhile task].

M99 pPN **miil* 'eye'. See Capell (1956).

M100 pPN **mila* 'bent'. NYA-W *mila* 'eel' ("sinuous") 3, *mila.nga.ka-nginyi* 'carrying in the belt...as tomahawk' ("carry on the hip") 4, */-mila/ -mili* 'GENITIVE case marker' 3 (with which compare the development of spPN- **jArntu* 'possession' into pNG **-tharntu* 'GENITIVE case marker') 3; DIY *mila* 'fish hook' 3; WMK *mel* 'straight (hair)' (with antonymic semantic development) 3; YDN *mila* (or *milay* ?) 'woomera' ("with a hook") 3; NGI *MILLA* 'hip' ("bent") 4; BAA *mila* 'hooked stick' 3.

Residue: WEM *mula* 'hip' 2, in which the implied innovation of **-i to u* following the labial requires confirmation. See, however, M152.

M101 pPN **milany* 'eye'. NYA-W *mila.l* 'spotted stingray' ("covered with eyes") 3, *mila.rri* 'thundercloud (< "front" < "face" < "eye") 3; MDB *mila* 'eye' 4; PIN *mili-rnu* 'look and stare continually' 3; KAU *MENA* 'eye' 3; NAN *milu* 'eye' 4; GID *milaany* 'awake' ("eyes (open)") 3. OG 1990d:83-84.

M102 spPN **milka(n)* 'eye'. NYA-W *milka* 'glowing coal' ("point of light") 3; PIN *milka.rli* 'blood' 3; pNY **milja.rn* 'fingernail' (Wilkins 1996:283-285) ("round, like an eye") 4; pAR **ilje* 'hand, finger' (op cit) 4: GUP *milka.rri* 'tears' 3; YIM, GYA *milka* 'ear' 3; YDN *milka* 'cowrie shell; traditional money' ("like an ear", cf NYA-W *pin.k.a* 'seashell' < pPN **pinang* 'ear' 3 and MRD *yampa 'seashell'* < spPN **yampa* 'ear' 4); MRG *milkan* 'face' 4; pCK **milki* 'eye' 4. The
**-k-* in spPN *milka(n)* is probably an incretion. For the relationship between 'blood' and 'tears', see **yalyu*. OG 1990d:83.

M103 spPN **milmu(rr)* 'eyebrow'. PIN *minmi* 'dyke ...' (sic) 3; THR-D *minmi.d.bi* 'eyebrow' 4; GUP *milma* 'within sight, in front of' 3; UMP *milmuy* 'eyebrow' 4.

M104 pPN **miilpa(l)* 'eye'. NYA-W *milpi-nyi* 'arrive, come' ("come within eyesight") 3; WLP *milpa* 'eye...' 4; GUP *milpa.rra.mpa.rr* 'eyelashes' 3; UMP *miil'a* 'face...' 4, *mil'al* 'hot coals' 2 (see the NYA reflex of M102); YIM *milpal* 'tears, weeping' 3. OG 1990d:83-84.

M105 spPN **milya$_1$* 'nose, end'. See **puulyal.*

M106 spPN **milya$_2$* 'wrist. NYA, UMP. OG 1990d:84.

M107 pPN **milyju* 'point, end'. NYA-S, WLP, PIN, YIM, GID (metathesized). OG 1990d:84.

M108 pPN **miima* 'movement'. GUP, GID. OG 1990d:84.

M109 pPN **miimi* [a kin term]. pKM **mimi* 'MoBr' 4; YAN *mimi* 'MoFa, DaCh (Daughter's child) 4; KLY *IMI* 'Wife's brother (male-speaking), Husband's sister (female speaking) (not in Miriam) 3; UMP *miimi* 'MoMo' 4; WEM *mim* 'FaFa, FaMo, old people' 4.

M110 pNY **mim(p)a* [a part of the head]. NYA-W, WLP, NYU-N. OG 1990d:84 (**mimi*)

M111 spPN **mina* 'right hand'. JIW *mina* 'right hand; ready' 5; KLY *mina* 'true, real, good, perfect' 5, *mina geth* 'right hand' 5 (*geth* = 'hand' < **kaji* < pPN **kaju* 'hand-held implement'); pP **mini* 'good' 5. See OG files.

M112 pDN **minga.ri* 'Mountain Devil' (a lizard). NYA, Pin. Cf **pinga* 'ant'. OG 1990d:84.

M113 pPN **mingki* 'laughter'. KAU, GID (*minyji-*). OG 1990d:84.

M114 pPN **minta* 'nose, edge'. NGL *minta* 'nose' 5; B-GU *minta* 'edge, bank' ("nose") 4; BAA *minta-ulu* 'nose' 5. See OG files.

M115 spPN- **min(t)a* 'navel'. KAU *MINDA.WORTA* 'navel' 4; PNK *MINNA* 'navel' 3; pKR **minta* 'navel' 4. See OG files.

M116 pDN **mintu* 'asleep'. NYA (antonym), KAU. OG 1990d:84.

M117 pPN ** minturr* 'fat, grease'. UMP, GID. OG 1990d:84.

M118 pPN **minya* 'animal, meat'. NYA *minyi* 'stinking' 3; WLP *minyi.nji.rri* 'cockroach' 3; PIN *minya.rra* 'skin, bark' (part-whole relationship) 4; NYU-N *minyi* 'rotten, stinking' 3; NYU-SW *minya* rotten, stinking 3; KAY *enye* 'vegetable food' 3; pP **minya* 'animal, meat' 5 (Hale 1976a, b, c); WMK *minh* 'meat, protein foods, edible animals' 5; YDN *minya* 'edible animal, meat, fish' 5; WER-D *miny-uk* 'perspiration, strong smell of perspiration' 3. The sense-development is apparently MEAT > ROTTEN MEAT > ROTTEN, STINKING, as also in **mA(r)ntu* (see). The semantics of the KAY form is paralleled in NGL *kuka.rn* 'ground-up seeds…' and *kuka.jangu* 'fruit tree', from spPN **kUka*, a meat-related term.

Residue: NGL *minya* 'semen' 1. See OG files.

It was suggested by me (O'Grady 1979:127) that pEPN **minyang* 'what' is an outgrowth from pPN **minya*: a frequent question asked of a returning hunter, **ngaana minya* 'what meat?' may have been truncated to **minya.*

M119 pP **miinyja* 'scab'. URA *minthi* 'scab' 4; WMK *mench.an* 'ripe -- e.g., …messy sore…' 3; NYW *miinyja* 'scabby sore' 4.

Residue: JIW *minyju* 'skin' 2. See OG files.

M120 pDN **minyju* 'the smell of burning hair or fur'. NYA *minyju.rn* W 'the smell of burning hair', 4, L 'smell of meat cooking' 3; WLM *minyju.rr.minyju.rr* 'smell of burning fur' 4; WLP *minji.n.pa* 'strong-smelling urine’ 3; PIN _minyji.rn.pu-ngu_ ‘urinate, after lifting a leg, as in the habit of dogs…’ 2. See OG files.

M121 spPN *_mipa-_ ‘show’. KAU _MEPU.DLO-NDI_ ‘show’ 4.; UMP _mi’a-ya_ ‘show’ 4; WMK _mee’.yaath_ ‘show’ 4.

Residue: irregular change of initial nasal (or dissimilation?) in YDN _nipa-L_ ‘show by pointing out’ 3, WRI _nipa-_ ‘show’ 3. See OG files.

M122 pPN *_mipany_ ‘face, front; person’. WLP _mipa.rr.pa_ ‘face; person, people’ 5; YUL _mipa.rr_ ‘face’ 5; GNG _mipi.rri_ ‘chest’ 3; GID _mipiny_ ‘face, person’ 4. For the semantics, compare *_ngArrka._ OG 1990d:85.

It is quite possible that M121 and M122 are related, the notion of SHOWING deriving semantically from BRINGING FACE TO FACE WITH. The extreme rarity of the shared _m-i-p-_ initial configuration makes this possibility all the more likely. Note moreover, Gothic _(at)augj-an_ ‘to show’, a derivative of _augō_ ‘eye’ (Buck 1949:1045).

M123 pPN *_mira_ ‘cavity’. NYA-W, S _mira_ ‘vein’ 3; NYA-L _mira_ ‘artery’ 3; NMA _mira_ ‘throat’ 4; YIN _mira_ ‘gullet’ 4; GUP _mer_ ‘cave’ 4; YDN _mira ‘kapamari_ cooking hole’ (“cavity”) 3; BAA _mira_ ‘bag’ 3.

Residue: prenasal-grade form in MRN _mirnta_ ‘shade’ 3 (references to caves along southward-facing Eucla Scarp?). OG 1990d:85.

M124 spPN *_miira-_ [verb of perception]. NYA, GRJ _mira.nu_ ‘aware, knowledgable’ 3; GRJ _mira-ka-_ ‘watch’ 3; PIN _mira-rnu_ ‘wait, feel a touch on the body’ 3; WIR _mira-rn ~ mi-rn_ (or) _mii-rn_ ‘hear, listen’ (Hercus)(sic) 3; YIM _miira-l_ ‘wave, show self, expose self’ 2; NYW _miru.rr_ ‘know how to do’ 3. OG 1990d:85.

M125 pY *_mIrla_ ‘shoulder’. PAY, GUP, RIT. OG 1990d:85.

M126 pNYY *_mIrna_ ‘arm’. PIN, GUP (‘arm’ > extension of the arm’, viz, ‘bag, net’). A further possible cognate, which would entail a revision of the reconstruction to *_mirnal_, is the putatively increted YDN form _min.k.il_ ‘elbow’. OG 1990d:85.

M127 spPN *_mirni_$_1$ ‘person; fully initiated man’. MRN _mirni.ny_ ‘person, fully initiated man’ 4; YAN _mirni.ngiya_ ‘man; Aboriginal man’ 4, _mirna.ji_ ‘visible…’

The development VISIBLE > PERSON also appears in Ngayarda reflexes of *_ngaya,_ viz. PNG _ngaya.rta_ …’, versus NYA-W _ngaya-rta_ ‘visible’). See OG files.

M128 pDN *_mirni_$_2$ ‘vagina’. NYA-L, KAU (and PIT?). OG 1990d:85.

M129 pNYY *_mirnti_ ‘hot coals’. NYA, WLP, PIN, GUP. OG 1990d:85.

M130 spPN **miirra*$_1$ [a LOC term]. DIY *mirri* 'top, above' 5; YDN *mirra* 'front –of body, etc.' 3; NYW *mirra* 'right hand' 3; GNG *mirra* 'top, high, above, up…' 5

Residue: WOI *mirring* 'hole in ground' 2. For the semantics, cf **nyArtu*. See OG files.

M131 spPN **miirra*$_2$ 'a calling out, shout'. PIN *mirra* 'a shout' 5, *mirra-ngu* 'call out, shout' 5; pNG **mirra-ku* 'call out (to), sing out (to)' 5; YIN *mirra* 'a call, howl' 5; YIM *miirrii-l* 'tell' 3; WAK *mirri.ya* 'rain storm, thunder ' 1.

Residue: increted form in pKR **mirr.j.a* 'noise' 2. OG 1990d:85.

M132 pPN **mirrang* 'dead'. NYA *mirra,rn* 'shade' 3; PIN *mirri* 'corpse; dead, unconscious' 3, *mirri-rnu* 'kill' 3; GUP *mirri.tja-n* 'squeeze, knead, press' 1; GID form with antonymic semantic development *mirring* 'alive' (of animates, but not of trees..)' 3.

Residue: UMP increted form *mit.p.i (< *mirr.p.i)* 'soul, spirit' 3. OG 1990d:85.

M133 spPN **mirri* 'string, rope'. NYA, WLP, NMA,GUP, UMP, YIM. OG 1990d:85-86.

M134 spPN **mirri* 'leech'. KAU *MIRI.NDA* 'sp. leech' 4; YIN *mirri-* 'long, thin and flexible…', *mirri-minyja* 'common caterpillar' 2; DIY *mirri.wiri* 'maggot' (with which cf NYA-W *wiru* 'maggot', from spPN **wiru*); WRG *miti* 'leech' 4.

Residue: YDN prenasal-grade enlarged form *minti.rri* 'salt-water centipede' 3. See OG files.

M135 pPN **mirring* 'star'. WAK *mirring.kim* 'stars' 4; MUR *mirring* 'star' 4.

Residue: WIR prenasal-grade enlarged form *minti.la* 'star' 3. See OG files.

M136 pNYY **mirrpa* [an emotion]. PIN, GUP. OG 1990d:86.

M137 spPN **mirrpu(l)* 'chest'. NYA *minpi* 'chest' 3; PLK *mirrpu* 'chest' 4; WRI *mirpil* (sic) 'chest' 4. See OG files.

M138 pPN **mirta* 'old man, big, heavy, important'. NYA, NYU-N, PAY, GUP, BAA. OG 1990d:86.

M139 spPN **mi(r)ta* 'clicking noise'. GUP *miḏa.thu-n* 'whistle, squeak' 3; YDN *mita* 'clicking sound' 4.

Residue: PIN prenasal-grade enlarged form *minti.ly-pa* 'clicking noise…'4; WMK *muut* 'noise' (**I* > *u* following the labial?) 1. See OG files.

M140 pNY _*muja_ 'ripe'. PNK _MUTYA_ 'ripe' 4; NGL _muji.pali_ 'overcooked, too dry to eat' 3.

Residue: prenasal-grade form in GRD _munju.l-pa_ 'ripe' 4. See OG files.

M141 pPN _*mUja_$_1$_-_ 'pick up, collect'. pNG _*muja-lku_ 'steal, kidnap' 4; JIW _muji.ya-ru_ Vtrans. 'steal' 3; GYA _muja-l_ 'collect, gather' 5; WEM _muja_ 'pick up' 5; WER-D _muja_ 'pick up' 5. See OG files.

M142 spPN _*mUja_$_2$_-_ 'run away, hide'. NMA _muja.rri-ku_ 'run away' 5, _muji.ra_ 'dingo (sp.canine)' 3; PAY _muji.rri-ma_ 'hide, crouch' 4; WMK _muuch.am-an_ 'run away, hide…' 5. See OG files.

M143 spPN _*mUja(n)_ 'black, darkness'. NYA _muju.ngu_ 'cloud' 5; MNG-N _muju.ngku_ 'cloud' 5; NGL _muju.ra_ 'cloud' 4; GUP _mutha.k_ 'overcast, covering of cloud' 4, _mutha.li_ 'black duck y' 3; YDN _mujan_, Ja 'black' 3 (for the semantics, cf _*mAru(n));_ DYI _mujan_ Adj '(fire or light) extinguished' ("darkness") 2.

Residue: prenasal-grade forms in YAO _muntha_ 'charcoal' 3; UMP _muntha_ 'black paint' 3; WMK _munth_ 'coals, charcoal; cremation ground' 3. See OG files.

M144 spPN _*muuji_ [religious term]. GUP. RIT, UMP. For the semantics, see *rawa. OG 1990d:86.

M145 spPN _*muujil_ 'navel'. WLP, YIM. OG 1990d:86.

M146 spPN _*mUjV_ 'semen'. MNG-N _muju.n_ (sic) 'semen' 5; WLM _muju.rn_ 'semen' 5; JGY _muji_ 'semen' 4.

Residue: NYA-L _muji_ 'widower' 1. See OG files.

M147 spPN _*muka_ 'egg'. NYA, WLP, KAU, KAY, YIM. OG 1990d:86.

M148 pPN _*mUka_ 'asleep, eyes closed'. PKR _*muka_ 'sleep' 5; B-GU _muka.muka_ 'blind' 3; KAM _muka_ 'blind' 3; NGI _mukaa_ 'asleep' 5; BAA _muka_ 'silent, quiet' 3. BLIND and SLEEP are seen to be related also in _*pampa,_ in WLP and YIN.

The notion of the embryo sealed within the egg may provide the key to the eventual uniting of M147 and M148. See OG files.

M149 spPN _*mUku_ 'lump'. PNK _MOKO_ 'knot; knob, button; any round and hard substance' 4; YDN _muku.lu_ 'lumpy; lump under skin; pill, tablet' 4; MRG _muku 'knee'_ 4. One could not justify a PR of 4 for 'knee' in this assemblage were it not for additional evidence for *LUMP -→ KNEE in _*mUrtuny,_ q.v.. Furthermore, there is an spPN root _*mAmpu(l)_ 'lump' whose reflexes include KAU _MAMBA_ 'knee', GUP _mamu.l̲'.yu-n_ 'put in mouth whole (not bite)' ("put in as a lump"), WAK _mampul_ 'lump, plump, fat or strong (like a hand), fist' and, conceivably (i.e., PR: 1) NYA-W *mampu* ‘head hair’ (if envisioned as a mangi or hair-bun). See OG files.

M150 pNYY ****muku (r)l*** ‘father’s sister, FaSi’. pKM , GUP. OG 1990d:86.

M151 pNYY ****mula*** ‘dry’. KAU *MULLA* ‘dry’ 4.

Residue: GUP increted form *mul.k.a* ‘dry’ 4. See OG files.

M152 pPN ****mUla*** ‘hip’. YAN *mula* ‘carrying position oin the hip’ 4; WEM *mula* ‘hip’ (probably wrongly ascribed to M100). 4. See OG files.

M153 spPN ****mulal*** ‘jealous(y)’ WLP *mulu* ‘jealousy’ 4.

Residue: NYW increted form *mul.k.al* ‘jealous’ 4. See OG files.

M154 spPN ****mulaN*** ‘black’. RIT *mol* ‘dark-colored, black’ 4; YIM *mulaan* ‘black wattle’ 3; WAK *mulu* ‘black’ 4; KAM *mula* ‘pus in sore’ 2.

Residue: unclearly motivated truncated forms in NYA-W *mul* ‘pimple, blackhead’ 4, WLM *mul* ‘pimple’ 4, YUL *mul* ‘blackhead’ 4. Note also WMK *may*$_2$ ‘blackhead’ 1; GYA *mula* ‘blood’ 2. See OG files.

M155 spPN ****mulmpu(ny)*** ‘not properly functional’. PIN *mumpu.l-pa* ‘the smallest length of a long broken object’ 3; UMP *ulmpi* ‘lame, cripple’ 4; WMK *olmp* ‘thin’ 3; BAK *olmpa* ‘thin, emaciated’ 3; YDN *mulmpu* ‘blunt’ 5; WRG *mulmpiny* ‘blunt’ 5. For the semantics, note URA *luka* ‘blunt, lame’.

Residue: WLP *mumpu.ly.mumpu.ly.(y)irra-rnu* ‘wolf it down …of food’ 2; YY *pelpe.luw* ‘lame’ (a case of assimilation?) 2. See OG files.

M156 spPN ****mUlngkal*** ‘shoulder. PNK *MUNKU.N.KO* (sic) ‘shoulder’ 3; NYU-N *mungku* ‘shoulder’ 4; URA-Y *ungkyal* ‘shoulder’ 4; YIM *mulngku* ‘ripples in water’ 3; GYA *mulngku* ‘wave’ 3; WRI *mungku* ‘mountain’ 3.

It is just possible that this root is one and the same as ****mungka*** ‘anthill (“like a shoulder”?). Note also ****kUlpil***. See OG files.

M157 spPN ****mulur*** ‘hollow’. PIN *mulu.wirtin-pa* ‘hole in end of spear…’3; NYU-N *MOLO.RN* ‘the loins’ 2: THL *mulu* ‘vagina’ 5; WRY *mulu* ‘vagina’ 5; D-THR *mudu* ‘vagina’ 5; GUP *molu* ‘grave’ (a hollow log in this area?) 3; YAN *nta-mulu* ‘your mouth; lips’ 3, *na-mulu* ‘socket of a harpoon, where point rests; entrance to a cave; opening of a hollow log coffin; door; entrance 4, *nanta-mulu* entrance to a ground nest of wild honey; start of a track/road’ 4; KLY *MULA.I* open…’ 2; UMP *ulu.lu* ‘hollow …of a tree’ 3; WMK doublet in *olo.t* ‘hollow log’ 3, *muul* ‘honey…found in hollow trees…’ 3; YIM *muliir* ‘tooth; euphemism for female sexual organs’ 3; JGY *mula.nyji* ‘hollow’ *3, mulay* hole’ 2; YDN *mulu* ‘hollow log’ 4. ‘

The presence of YIM *muliir,* above, implies that Hale’s pP ****mulir*** ‘tooth’ should be included in the above assemblage.. I believe that this is the case, and that the development HOLLOW → TOOTH came about in the following way. In Cape

York Peninsula, venomous snakes are part and parcel of the way of life of the people. For linguistic evidence of this, consider the development of pPN **rirrang* 'tooth' to UMP *irra* 'snake'. The hollow, grooved fangs of venomous serpents would have inspired the naming of a FANG as **mulur*, and the widening of meaning to include TOOTH as well would have followed quite naturally.

The innovation whereby spPN **mulur* descends in pP as **mulir* belongs in the realm of sporadic sound change. Note, for example, spPN **parntung* 'all' -→ UMP *paanti̱.ku*, spPN **ngurru* → UMP *wuti̱* 'fingernail', and pPN **kUlu* 'louse' → YDN *kuli*. That the last reconstruction is correct is shown by the fact that the descent of pPN **kuli* 'anger, fight' and its ilk is remarkably conservative – witness NYA *kuli* alomgside pP **kuli* (Hale 1976c). from the far sides of the Australian continent. See OG files.

M158 pPN **mulyarr* 'piece, fragment, crumb'. DIY *mulhu.rrhu* 'small pieces of' 4; YY *muth.l* 'bits, pieces, crumbs…' 4; GID *mutha.rr* 'fragment' (Sharpe) 4. See OG files.

M159 pPN **mUlyja(l)* 'red ochre, red'. WLP *miji.ly.pa* 'sap from gum tree…' 3; PIN *miji.rti.rti* head band –frequently red…' 4 (both wrongly listed under M94 – as also NYL *miji*, below); KAU *MILTE* 'red ochre' 3; PNK *MILTI* 'a sort of red ochre…' 3; NYL *miji* 'blood' 4; IOR *MUDJIL* 'red' 3; BAA *miltha.ka* 'egg-yolk' 3.

Residue: NYA *piji.rri* 'blood', with unclearly motivated *p-* 2; PIN *mulya.nyitil-pa* 'red ochre, red…' 1; DIY *mithi* 'silver colored shiny ochre' 1; GYA *muja* 'wound not yet healed' 3. See OG files.

M160 pEPN **mUmpa(l)* 'thunder'. NUN *mumpal* 'thunder' 4; BAA *mumpi.nyi* 'drum, beaten to make emus curious…' 4. See OG files.

M161 pEPN **mUmu* 'buttocks'. BTJ *mumu* 'posterior, backside' 5; B-GU *mumi.rt* 'kidney' 3; WEM *mum* 'bottom, rump' 5; WOI *mum* 'bum' 5. See OG files.

M162 pPN **muna* 'far removed (in time or space)'. NYA (*munu* 'NEG'), WLP (increted), PIN (increted), KAU, NYU-N, PAY, RIT; possibly pP *(*-muntu* 'ABLATIVE,)' YIM, GID (metathesized reflex). OG 1990d:86.

[-- PIN, etc. *munga* 'dark'. See **punga*]

M163 spPN **mungka* 'anthill, termite mound'. WLM, pNG, KAY, KLY, pP. OG 1990d:86.

M164 spPN **mungka-* 'eat'. pNG **mungka-* 'eat' 5; GUP *mung.dhu-n* 'drink straight to mouth, stoop down to a pool' 4; RIT *mung-gu-* (reduplicated as *mung-gu'-mung-gu-)* 'drink' 4; pP **mungka-* 'eat, drink' 5.

Residue: (consciously?) altered form in PIN *mungu-rnu* 'eat' 3; DIY *mungka-* 'embrace' 2 (cf the English expression 'I could eat you!'). OG 1990d:86.

M165 pPN **mUngkV-* 'come, rise (and POTENTIALLY spear)'. PAN *$mungku.wa.lku* (sic) 'come, return' 4; G-YA *mungki-l* 'spear to kill' 4; WOI *mungka-* 'make' 3 (for the semantics of which, see reflexes of pA **raa-*). For RISE -→ TO SPEAR, compare reflexes of **karta-*, **payka-*, **taama-* and **yarnta-*). See OG files.

M166 spPN **mungurr* 'bat'. NGL form putatively showing anticipatory assimilation and enlargement: *ngungu.ny* 'small bat' 4; YAO *munguy* 'bat, insect-eating' 5; UMP *munguy* 'bat', (with regular development of **-rr* > *-y-)* 5; M-KU *mungurr* 'flying fox' 4. See OG files.

M167 spPN **mUnta-* 'take'. PIN, YIN, PAY, JIW, YDN ('drag, pull'). Residue: WOI *munda-* 'squeeze' 2. See OG files.

M168 spPN **mUnti* [emphatic word]. YIN *munti* 'really, truly; loud (roar)' 4; NYW *munti* 'hard' 4. See OG files.

M169 pNYY **muntu* 'coccyx'. KAU, NYU-N, RIT. OG 1990d:87.

M170 pA **mUnya* [a small insect]. JGY *munyi.munyi* 'small light brown ants' 4; YDN *munyi.munyi* 'ant' (generic) 4; WEM *munya* 'louse' 3 (and one language in eastern Australia, which GN O'Grady has lost track of, has *munya* 'sandfly' 3!).

Outside of Pama-Nyungan, Capell (1956b:79), reports Amarag (AMA) *munya* 'mosquito'. See OG files.

M171 spPN **mUnyja* 'self'. PIN *munyja* 'unselfish' 3; pCK **muntha* 'self' 3. Antonyms? See OG files.

M172 spPN **muunyja-(?)* 'kiss'. NYA *munyja-rna* 'kiss' 5; WLP *nyunji-rni* 'kiss' 4; YUL *munyja-rnu* 'kiss' 5; YDN *nyunyja-L* 'kiss' 4; NYW *nyuunyja-L* 'kiss' 4. Anticipatory assimilation, operating independently in WLP and the two northeastern languages, may be in evidence here. (Note also spPN **nyujal* 'navel' > NYW *juuju.ru.*

However, the above interpretation leaves one feeling uneasy. What if the correct reconstruction is **nyuunyja-*, rather? The NYA and YUL forms would then have undergone dissimilation.

Ken Hale suggests further, in a phone call of October 29, 2000, that **nyuunyja* is etymologically related to WLP *nyuny.pa* 'spittle', so that kiss is "exchange spittle". See OG files.

M173 pPN **mUnyji-* [water-related verb]. pCK **multhi.pa-* 'sprinkle'; BAA-B *munji-* 'fill up' 3. The Karnic preconsonantal nasal-to-lateral shift is found also in the descent of **mAnka*, **junyjuN* and about six further roots. See OG files.

M174 pPN **mUnyu* [a bodily joint]. GRJ *munyu* 'knee' 4; WEM *muny(-uk)* 'elbow (his)' 4.

Residue: NGL *munyu.wanti* 'initiation tourniquet' 2. See OG files.

M175 spPN **mura-* 'copulate'. WLP, PIN, KAU, NYU-N, GUP ('be hot'), YIM ('ashamed'). OG 1990d:87.

M176 pPN **murlang* 1. 'cooked' 2. 'withered (foliage, tree)' 3. 'dead'. NYA *murla* 'cooked, ripe' 4; WRN *murla* 'excrement' 2; KAU *MULLA* 'dry' 3; YGD-S *murla* 'dead' 4; NGL *murla* 'stonefish' (< potential death?) 1; pNG, pK **murla* 'meat' 2; WMK *mul* 'dead' 4; YIM *muli* 'barren, infertile, sterile' 2; BNJ *mula* 'hungry' ("dead") 3; WRJ *mulang* 'vomit, to vomit' ("to die") 3. For the semantics, cf spPN **kUnka* 1. 'raw' 2. 'green (foliage)' 3. 'alive' as well as K876 **kUrri*. OG 1990d:87.

M177 spPN **mUrlka* 'hungry, and POTENTIALLY suffering sharp stomach pain'. PIN *murlku.rr-pa* 'hungry' 3.

Residue: YDN prenasal-grade form *mulngka* 'sharp stomach pain' 3. See OG files.

M178 pPN **murlki* 'short'. NYA, GID. OG 1990d:87.

M179 pNYY **murni* 'covert'. NYA-W, GUP. OG 1990d:87.

M180 pDN **murni-* Vtrans. 'collect, gather'. NYA-W *murni-rni-...#a* 'collect, gather...e.g., kindling wood' 3; PIN *murni-rnu* 'break grown branches for building a *murli* ..[shelter]' 3.

M181 pNYY **mu(r)nku* 'pieces, scraps'. PIN, GUP. OG 1990d:86.

M182 spPN **muurra* 'refuse, deny'. NYA-W, YIM. OG 1990d:87.

M183 pEPN **mUrra(n, ng)* 'alive, lively'. YDN *murra* 'larking about...' 3; WRJ *murrun* 'alive' 4; IOR *MUTUNG* 'alive' 3; WEM *murren.ta* 'to be alive' 4; WOI *MURRON* 'alive' 4. See OG files.

M184 spPN **mUrra(ny)* 'sick, in pain'. WLP *murru.murru* 'sick, in pain' 3; YIN *murra.rtu* 'swollen' 2; JGY *murrany* 'fever' 3; YDN *murru* 'toothache' 2. See OG files.

M185 spPN **mUrr.k.a* 'serious, scowling, sulky'. NYA-W, KAU, GUP. Also JGY *murrka jana-y* 'sulk'. See OG files and OG 1990d:87.

M186 pDN **murrku* 'semen'. 'POTENTIAL or ACTUAL child'. WLP, PIN; possibly GUP taboo-deformed form *mulngu.rr*. OG 1990d:87

M187 pPN **murru*$_1$ 'back, spine; ridge'. NYA-S, PIN, NYU-N, PAY, GID. OG 1990d:87.

M188 spPN **murru*$_2$ 'hummock' (probably as one with the foregoing). NYA-S, WLM-E ('pimple'). Reduplicated form **murru.murru* 'hummocky, lumpy, rough' in pKR, GYA. See OG files.

M189 pPN **murruny* 'ashes'. WLP ('scarification, cicatrice'), KAU, PNK, GID. OG 1990d:88.

M190 spPN **mu(r)ta* 'hind part'. NYA-W, PIN, GUP, UMP, WMK. For the semantics, see **wArn(t)u*. OG 1990d:88.

M191 pPN **mUrtu* 'blunt, dull, lopped-off', hence 'short'. PIN *murtu* 'short' 3; G-YA *tutu* (with anticipatory assimilation) 'blunt' 3; WER-D *murt* 'blunt, useless' 4.

Residue: prenasalized reflexes in YIN *murntu* (rare) 'thick, stout' [i.e., relatively short] 2; PIT *murntu* 'blunt' 4. See OG files.

M192 spPN **mUrtuny* 'lump, knot'. NYA-W *murti.ngi* 'knee' 3, *mirti* 'running' 2 (for the connection, cf UMP *pungku* 'knee' and *pungku-kuntha* 'fast runner); WLP *mirdi* 'knee' 3; PIN *murti* 'knee joint' 3; PAY *murtiny.ka.ji* 'knee, shin, lower leg' 3; GUP *mud̲u.lul* 'lump' 4; WAK *mutuny* 'lump, knot' 4. See J58 for a further example of the preservation of pPN final **ny* in PAY.

The semantic agreement between the distantly related GUP and WAK seems to guarantee 'lump' as the ancestral referent. For further instances of LUMP -→ KNEE, see **mAmpu(l)* and **mUku*. OG 1990d:88.

M193 pPN **muwa*$_1$ 'gathering, collection'. WLM, WLP, GUP, RIT, GID. OG 1990D:88.

M194 pPN **muwa*$_2$ 'language'. NYA, PIN; possibly NYU-N ('bellow'); GUP. OG 1990d:88.

M195 spPN **muuyu* [spousal term]. Karlamayi (KAL) *muyi* 'wife' 4; UMP *muuyu* 'husband' 4; WMK *pam* (< **pama* 'person') *muuy* 'husband, boyfriend' 2.

Residue: Further conceivable cognates are: PNK *MUYU* (Noun) 'back' 1; Manandjali (MAN) *muyum.jal* 'one's son' 1. See OG files.

As was done with **j-*, an attempt is made below to estimate the degree of overall exhaustiveness of the **m-* file. As noted earlier, three facts should be kept in mind:

(1) Susan A. Fitzgerald, in her truly trail-blazing 1997 doctoral dissertation, brought together 838 cognate sets in **k-*.

(2) Yidiny (YDN) appears to be conservative in its retention of initial pPN **m* and **k*, so that the relative frequency of occurrence of these two consonants in this position in modern Yidiny should approximate that in pPN.

(3) This frequency of occurrence can be expressed by the ratio 11 : 23 (Dixon 1977:38).

It follows that the number of (sub)pPN reconstructions in **m-* in such a thoroughgoing study as that of Fitzgerald, making sophisticated use as she did of modern computer technology, will be of the order of (838 x 11) divided by 23 = 400, say.

Therefore, the 195 **m*-sets presented above amount to a humbling 49% of the number of sets with initial **m* which are ultimately reconstructible. (The above calculations assume a discard rate of 5% of Fitzgerald's **k*-sets and an intake of new sets of like size.)

ROSTER 8-95 *N-

The source of fifteen of the following **n*-sets is Hendrie (1990). (Sub)pPN **n-* originally appeared to be the initial consonant of least frequent occurrence, but is now known to be eclipsed in this regard by **lh-*.

N16 pPN **nama-* 'grab' KAU ('carry'); GID ('hold, touch, grab'). Hendrie 1990:50.

N17 pNYY **nami* 'eyebrow'. WRN *nami.nami* 'eyebrow' 4; YGD-S *nyami.n-pa* (sic) 'eyebrow' 4. WRY *nyami.rn-ma* 'eyebrow' 4.

Residue: possible enlarged and subsequently metathesized form in PAY *nhanhi.marra* 'eyebrow' 2 Alternatively, this form could be a semantically shifted reflex, with **-marra* enlargement, of spPN **nAnyi* 'pubic hair'. See OG files.

N18 spPN **nAmpa* 'hold'. WLM *nampa.ku-nu* 'embrace...' 4; YDN *nampi-L* 'hold in hand' 4. See OG files.

N19 pEPN **nampul* 'stone'. YIM, GID. Hendrie (1990:50).

N20 pNYY **namu* 'bivalve'. PAY, GUP. Hendrie 1990:50.

N21 spPN **nAna* [a term with sexual connotation]. PIN *nana* 'penis' 4; PNK *NANNA* 'wrong, bad' 2; NYU-N *NANNA* 'navel-string' 3; KLY *NANA* 'vulva (?)' 4; YDN *nani-L* 'swear at' 3.

But for the supporting evidence in the semantic diachrony of **pIlya,* some of these PR scores would have to be lower. See OG files.

N22 spPN *nAnka(l)* 'persistent'. WLM *nanka* 'persistent' 3; YDN *nankal* 'older man as leader' 3. See OG files.

N23 spPN **nAnyi* 'pubic hair'. MNG-N, WLM *nanyi* 5; ADN *nhanyi*; pNG **nhanyi* 5; PIT *yanhi* 4 (no forms in PIT have initial *n-*). Note also pNG **nyalyu* 'pubic hair'. See OG files.

N24 spPN **nAnyja-* [verb of ingestion]. KAU *NANTA-NDI* 'eat vegetable food along with meat' 3; KLY *NADA-I* 'chew' 3; W-MK *nanta.pek-an* 'get a lot of meat or fish' ("POTENTIALLY eat") 3. See OG files.

N25 pNYY **napa* 'ant'. PAY *nyapa.rra* 'black ant' 3.
Residue: Medial nasal-grade (or assimilated?) forms in WLP *nama* 'any' [5]; PIN *nama* 'ant (generic)' [5]. Hendrie 1990:51.

N26 pPN **napu* 'navel'. PIN *napi.ny-pa* 'navel' 4; GUP *napu.ngga* 'between, middle' 4; GID *napu.rr* 'narrow' 3. The navel is situated at the NARROWEST part of the human torso, and 'middle' is seen to be related, in turn, to each of 'feces', 'urine', 'testicle' and 'semen' (O'Grady 1998:223). Hendrie 1990:51.

N27 spPN **nArnu* 'earth, ground'. NYU-N *NANO, nharnu* 4, NYU-SW *nhorna* 4, NYU-E *nhorn* 'muddy, swampy ground' 4; pNG **nharnu* 'earth, ground' 4; YAN *narnu-* 'EARTH-related noun class prefix' 3.
Residue: Northeastern forms with shared sporadic fronting of **u*: URA-AT *nani* 'ground, dirt, sand, sugar' 3; WRI *nani* 'earth, ground, dirt, sand' 3. See OG files.

N28 pPN **nArra* 'sinew, string'. YIM *narra*** '(gristle, hard meat to chew?)' 4; JGY *narra* 'string, vine' 5; GID *naarr* 'sinew' 5.
Residue: Increted form (pre-WD **narr.p.a)* followed by lag assimilation, giving PIN *nan.p.a* 'hair belt' 3. A comparable assimilation is seen in NYA-S *Marrngu* ~ *Manngu* 'Aboriginal person' heard in the speech of Monty Hale in March 1960. See OG files.

N29 spPN **nArrngkay* [a term with sexual connotation]. NYA-W *nangka* 'erect (penis)' 4; WIR *nhangka* ~ *nyangka* 'Aboriginal person' 3; YDN *narrngkay* 'larrikin' 4. See OG files.

[Author's note: In Australian English 'larrikin' means 'a hoodlum'.]

N30 pPN **Nartu* [LOCATIVE term]. NYU-N *N-YARDO* 'left arm' 5; pKM **nyartu* 'left hand' 5; BAA *nharta* 'down, downwards' 3. See OG files.

N31 spPN **nAta-* 'hit'? YDN *nata-L* 'peel off layer' 3.
Residue: Prenasalized form in pWK **nanda-* 'hit' 3. See OG files.

N32 pPN **nawu* 'bedding'. PIN, GUP, YIM, GID. Hendrie 1990:52.

N33 pEPN **niika(rr)* 'Aboriginal person'. W-MK *nek* 'name' 5; GUM *niikarr* 'black man' 3; BAA *nhiki* 'name' 5. See OG files.

N34 pPN **nima-* 'pinch, squeeze'. PNK *NIMMA-TA* 'pinch, touch, feel, squeeze' 5; YDN *nima-L* 'pinch, squeeze with the fingers' 5; WAK *nim.nga-* 'pinch' 4; NGI *nhima-li* 'pinch' 5.

Residue: variant form with initial fortition in W-MK *thim-an* (Avoidance term) 'squeeze, strain' 3. See OG files.

N35 pPN **ning* 'silent'. NYA-W *niny* 'motionless (as in sleep, not in death)' 4; WLM-N *nim* 3, WLM *num* 2 'firmly closed (as lips...)'; GID *ning* 'quiet, silent' 4. Hendrie 1990:52.

N36 spPN **Ningku* 'nose'. PAY *nyingku.rlu* 'nose' 4; GOA (Guwa) *NINGOO* 'nose' 3; MIT (Mitakudi) *NING-KA* 'nose' 4 (Roth 1897:44). As none of these three languages is known to be diagnostic for the pPN **n- : *ny-* contrast, (then) **N* is reconstructed for initial position.

Ningaloo Reef off the northwest coast, seen on Canadian television, may be named for some nearby promontory (cf the semantic range of Russian *nos*) in the area. See OG files.

N37 pPN **nirrim* [having a hard cover]. PIN, GUP, GID (and possibly YDN *nita*). Hendrie 1990:53.

N38 pPN **nuu-* 'know, understand'. PIN, KAU, PAY, GID. Hendrie 1990:53.

N39 pPN **nuka-* 'eat'. KAU, PAY, GUP (luka), UMP, GID. Hendrie 1990:53.

N40 spPN **nukal* [a bodily joint]. NYU-N *NOGY.T, nhuka.j* 'elbow' 3; NMA *nhuku.rl.ka* 'ankle' 3; GRY *nyuku.ru* 'elbow' 3; KUR *nhuu.rt.ka* 'ankle' 3; PLK *nhuku* 'ankle-bone, talus' 4; ANG *kwe* 'foot' (O'Grady 1990b:11) 3; YIM, YDN *nukal* 'ankle' 5 5.

Residue: unaccountably laminalized initial in PIN *nyiku* ~ *nyiku.ny-pa* 'elbow bone' 3; prenasalized enlarged form in GUP *nonggu.rr* 'elbow, bay, corner, new moon, room crescent (SIC) ' 3.

In a remote, presumably pre-proto-Pama-Nyungan epoch, **nuka*l and L62 **lUku* may well have had a common origin. See OG files.

[Editorial Note: For N38, cf English 'knew' or 'know'. For N39, cf Jewish English *nûš* 'eat a snack, nibble some food'. For N40, cf English 'nudge', especially with the elbow.. The late Larry Trask used to delight in playing this game of 'finding a match up in my head' so to defeat Basque external relations proposed by Bengtson. –HF]

N41 pEPN **nUpa* 'ripe, dead'. Antonymic development in W-MK *yuup* 'wriggling, restless, very active' (< "alive" < "dead"?) 3; YDN *nupa* 'ripe' 3; just conceivably, pP **nyipi* 'one' (<"alone" < "immature" < "mature, ripe") 1 (Hale 1976c).

Residue: prenasalized denominal form in BAA *nhumpa.la-* 'to rot' ("to be over-ripe") 3. See OG files.

N42 pEPN **nUpi-* 'to seek, look for – and thus POTENTIALLY to be crying'. G-YA *nupi-l* 'seek, look for' 3.

Residue: form with medial nasal gradation in WEM *numi.la* 'cry, weep' 3. See OG files.

N43 pNYY **nurlu* 'curved, bent'. NYA-W *nurlu* 'shelter afforded, e.g., by ledge of rock' 3; WLM *nurlu.n* 'deep coolamon ...' ("curved") 3; Nharangga (NRA) *NUDLI* 'butterfish (has a bent tail) (Jane Simpson, personal communication, 1991) 2; KAU *NURLO* 'curvature, corner' 4, *NURLE-NDI* 'turn, twist' 4.

Residue: pKM **nhurli* 'crooked' 4, like the NRA item above and two forms listed under N27, shows the effect of sporadic vowel fronting. Hendrie 1990:54.

N44 pNYY **nurrku(l)* 'egg' (hence 'red'); 'brain'. NYA *nurrku.l* 'red ochre' 3; WLP *nurrku* 'Snappy Gum' (named for RED color?) 1; KAU *nirki.nya* 'eggs of lice; nits' 3; PNK *NULKU.NYU* (a mistranscription of **nurrkunyu* ?) 'eggs of lice, nits' 3; NYU-N *NURGO* 'egg, seed' 4, NYU-E *nuruk* 'egg' (near-language-death situation version of **nhurruk*?) in *kat-nuruk* 'brain', literally 'head-egg' 3; GUP *nurrku* 'brains' 4; YDN *nirrkil* 'charcoal, hot coals' ("red") 3. Hendrie 1990:54.

The shape **nurrkV* is very highly marked in Pama-Nyungan (WLP *nurrku,* above, is the only such form in the huge dictionary of that language edited by Laughren and Hoogenraad). Accordingly, the likelihood that all of the above forms are cognate is all the greater, despite their wide-ranging meanings.

Addendum

N45 spPN **naja* [a large bird] UMP *nyaja* 'Brush Turkey' 3.

Residue: prenasalized form in GUP *nanydja* 'pelican' 3.

As in the case of **j-* and **m-*, I estimate herewith the degree of overall exhaustiveness of the **n-* file.

(1) Fitzgerald's comprehensive **k*-file contains 838 cognate ets.

(2) The indicated **n-* : **k-* ratio is 1.5 : 23 (Dixon 1977:38).

(3) Therefore expect, in a Fitzgerald-type study, to uncover (838 x 1.5) divided by 23 = 55 **n*-sets, say.

Thus the 29 **n*-sets above represent a mere 53% of what could be unearthed, given the necessary huge, convulsive sustained Herculean effort.

Defending Pama-Nyungan: Some Comments

by Paul Whitehouse

Santa Fe Institute[1]

A paper written in defence of something that needs no defending seems a little excessive, but if Geoff O'Grady thinks his critics need a reply, we should back him up.

The evidence in support of Pama-Nyungan is overwhelming and widely-published, but it wants restating that the poverty of the alternatives to the P-N hypothesis is in stark contrast to the case for it. Even on the basis of crude comparison the dividing line between the two is very clear, and in Australia that is a rarity. Diffusion may not have the supernatural powers with which Dixon appears to credit it, but the blurred boundaries between most Australian language families are real enough to make the sharp outline of Pama-Nyungan exceptional.

To flesh out these assertions a little I will simply mention the first person dual inclusive pronoun **ŋali**, which is found just about everywhere in Pama-Nyungan—and nowhere else. The exception to this is Garawa and Wanyi, where **ŋali** is the first person dual *exclusive* pronoun. In Yanyuwa, Warluwara and Bularnu we have 1 du. inclusive **ŋali** versus Bularnu **ŋali-ya** 1 du. exclusive. As we shall see, these named languages, and these alone, have been put forward as additional members of Pama-Nyungan. This example is typical of the way in which so many of the cognate sets that define languages as Pama-Nyungan at the same time consistently exclude the non-Pama-Nyungan.

Since its original conception the membership of Pama-Nyungan has undergone some change. Firstly, the Tangkic family was removed (Blake 1988 and 1990, Evans 1988) and replaced with the Yanyuwa language (Tangkic lacks **ŋali**, incidentally). Yanyuwa in turn has been shown to belong to the Warluwaric subgroup of P-N (Blake, 1990), and the case for including the Garawa and Wanyi languages in an expanded Warluwaric is supported by the example above. Garawa and Wanyi, although traditionally 'non-P-N,' would seem to represent the last candidates for inclusion in P-N whose membership is not seriously problematic or in conflict with other putative relationships.

Having thus disposed of the core of O'Grady's paper, there remain a number of other issues that need to be addressed, with implications for Australian linguistic taxonomy as a whole.

Language Taxonomy

This presents certain practical difficulties since the paper relies so heavily on material contained in earlier papers. This is inevitable with a career as long as Geoff O'Grady's; if every paper had to include all the earlier papers on which it builds, you would end up having to publish something the size of *War and Peace* every time you wanted to say anything. Unfortunately, in this instance it means that I too will have to discuss material in papers that may not be published elsewhere in *Mother Tongue*.

---

[1] The author is a member of the Evolution of Human Language Program organised by the Santa Fe Institute, whose support is gratefully acknowledged.

The first of these is O'Grady (1998), of which this paper is a continuation, containing numbers J1-J25 of his Pama-Nyungan reconstructions. This in turn refers the reader to O'Grady and Fitzgerald (1997) for the internal taxonomy of P-N. What we find here, though, is something of a disappointment. Table 19.2 (p. 344) gives, 'some language families within the Australian phylum.' Judging by the title, and by the absence of several familiar names from the chart, these do not embrace the whole of P-N. This seems odd when one is used to seeing every branch shown at a particular taxonomic level (in this case every co-ordinate branch of Pama-Nyungan). Even so, the components that *are* shown amount to fifteen co-ordinate branches, with no suggestion as to where the deeper fault lines may run, and I could not help wondering whether this neglect of something so crucial to our understanding of P-N might arise as much from the author's priorities as from his understanding of the taxonomy.

As for the relationships shown (though not discussed), there are further surprises. I was particularly struck by the placement of the Yulngu languages with Kanyara and Mantharda as part of a subgroup of the Southwestern family (his Nyungo-Yulngic-Nyingic). I have not yet been able to place Yulngu myself, but I am fairly sure it doesn't belong there.

My comment about the implied lack of interest in taxonomy is as much a statement of my own bias towards it, but I believe there is good reason for making taxonomic arrangement the highest priority. The whole point of historical linguistics is surely the historical inferences that it enables one to draw and the contribution these allow us to make to the wider study of human prehistory. The historical sequences implied by a comprehensive family tree are, in my view, of such importance that, were *I* writing about Pama-Nyungan, its taxonomic framework would be my basis for structuring what I wrote—and every cognate would be presented and disucussed in terms of what it said about the overall taxonomy.

Similarly, the single most important fact about P-N is that it is a subgroup of a wider Australian phylum, and the question of where it fits into the internal taxonomy of that phylum would override even the internal taxonomy of P-N. Not that the two questions are really separable, since each has a huge bearing upon the other.

This approach would require that the taxonomic significance of variations between forms in different languages, and the choice of families represented, be discussed more fully, but in O'Grady's paper the significance of particular languages is expressed mostly in terms of their geographic separation. This is, of course, an irrelevance when what really matters is the *genetic* distance between them. Besides, when a language family spreads across a large area, which is what a non-diffusionist account of Australian linguistic prehistory would imply, one would expect to find greater similarity between some widely separated languages than between those clustered around the original locus of dispersal.

Equally questionable is the statement in O'Grady 1998 that, 'a truly Proto-Pama-Nyungan element is only claimed as such when, say, in addition to the above three-member constellation [Mirniny, Wik-Mungkan and Wakawaka], *at least one language from southeastern Australia* is represented' (p. 212, O'Grady's italics). It is inevitable that in any family there will be some attrition, so there will always be etymologies in which one or other branch is not represented. There will even be genuinely proto-P-N etymologies that are confined to a single branch. What the statement quoted implies is that there is a whole category of (potentially) rock-solid evidence that can never be accepted.

Worse still, though, is the view expressed in correspondence by Dixon that no etymology involving just two examples can ever be accepted as evidence. So, what about the many language families with only two members? How could they ever be demonstrated? This would create a separate category of genetic nodes that can never be proved. No wonder Dixon is able to accept a version of Australian with upwards of fifty co-ordinate branches.

The best way to identify words from the proto-language that are only retained in a single branch, and to demonstrate the validity of groups with just a couple of members, is out-group comparison. However, the efficacy of out-group comparison is limited when the investigation covers only a selection of the relevant languages. Where this is done by choice it is regrettable, but when an Australianist of Geoff O'Grady's standing is prevented from examining the full range of Australian lexicons because these are still not available in print, it is a scandal. The collections held by the Aboriginal Studies Electronic Data Archive (ASEDA) may one day rectify this situation, but my own experience (together with Tim Usher) of trying to incorporate these data into a single all-inclusive database suggest that there are still many obstacles to negotiate.

Language Dating

Perhaps because the Australian data are so uneven, with very homogenous personal pronouns throughout the continent, plus a small number of widespread lexemes, contrasting with an otherwise extremely diverse lexicon, the idea has often arisen that there is something different about linguistic change in Australia. O'Grady himself says that the retention rate is much lower in Australian languages, such that glottochronological percentages represent a much shallower time depth there than elsewhere in the world. Other linguists have attributed this to the practice of name taboo; O'Grady puts the blame on what he calls Antonymic Semantic Switching, or Antonymic Semantic Tradeoff (AST).

Name Taboo

In Aboriginal Australia, when someone died other people were forbidden from mentioning the name of the deceased, or even any word that sounded like the name of the deceased. This practice was almost universal, and it has been argued that because of it such a high turnover of vocabulary is generated that it makes "normal" historical linguistics impossible. Indeed, this is invoked as the engine of the ultra-diffusionist model.

However, this argument has recently been comprehensively rebutted. Paul Black (1997) found it flawed in several ways. Name taboo was not permanent, as originally argued, nor did it apply to all tribe members. There are examples of the names of the deceased being re-used, and of words recorded as taboo in earlier sources being used normally again at more recent times. There are also special vocabularies that exist for avoiding taboo words, thereby insulating the language as a whole from these individualised taboo events. Black concludes that, 'since name taboo was generally temporary, and since many languages used substitutes which were also clearly temporary, this cultural practice alone need not have had much effect on lexical change in Australia.' (p. 58)

In the same year Mark Harvey (1997) examined the problem, and came to the same conclusion. Harvey quotes Douglas (1971, p. 18) to the effect that people continued to use taboo names out of the hearing of the bereaved, and adds, 'I assume that this type of behaviour would have been very widespread, if not universal, throughout Aboriginal Australia.' (p. 182). He goes on to suggest that the status of the deceased would influence the extent to which the name taboo would have been respected and adhered to.

I would also argue that such a process would necessarily have a self-limiting element to it. The quote from Harvey is no more than a restatement of human nature, and the same unconscious urge to make life easier would also tend to create a *cordon sanitaire* around certain words, which people would avoid choosing as names because they would make the taboo process more irksome. In particular, neither pejorative words nor their homonyms would be used as personal names.

Antonymic Semantic Tradeoff (AST)

Neither Black nor Harvey mention this concept, but O'Grady has recourse to it often. He writes (O'Grady, 1998) that, 'semantic change to the opposite meaning is rife within Pama-Nyungan, and has the effect of lowering cognate percentages. This becomes apparent when two dialects or languages turn out to share an unexpectedly low percentage of cognates in light of their overwhelming similarity in grammar.' (p.215)

His case is contained in an unpublished paper, dated February 1997, on the possible homeland of the Western Desert Language. In it he argues that it would, 'greatly reduce cognate percentages arrived at in any lexicostatistical study' (p. 5). O'Grady concludes this paper with an appendix containing a 100-word list in Pintupi and Gawurna, and I decided this would make a suitable test case to see if it was possible to quantify the effect of AST. Unfortunately, this requires me to discuss at length a paper which the reader may not have in front of him; if so, I hope the reader will excuse me.

As I understand it, AST is a phenomenon that is confined to the language in which it takes place; two words exchange meanings, but in so doing simply swap places in the lexicon—unlike borrowing which involves an exchange between languages. Although one or other of the shifted words may subsequently drop out of the lexicon, the other shifted word would remain in the language as witness to the exchange of meanings. It should therefore be possible to identify such words by out-group comparison. With this in mind I looked in neighbouring and related languages for words identical in form to Gawurna and Pintupi words but with an opposite, or at least different, meaning. This search covered the whole of the data I had for each language, not just the items on the 100 word list.

Before this, however, it was necessary to narrow the search by eliminating all those words identifiable as cognate with or borrowed from other languages. Such words, having the same meaning as those in other languages, must by definition *not* have undergone antonymic semantic tradeoff. In this way I was able to account for 92 Pintupi and 72 Gawurna words out of the 98 (out of O'Grady's 100) for which my database has comparative data.[2] However, because many of the matches were confined to languages that are genetically close to Pintupi or Gawurna, it was also necessary to consider the possibility that AST had occurred in the protolanguage before it fragmented. This obliged me to look for homonyms across the entire lexicon of every language in my Australian database. Space may not allow for the detailed audit to be reproduced here, but if not a copy can always be obtained by contacting me at paul_whitehouse@talk21.com.

In the course of this survey I found just one case where languages appeared to have swapped meanings (No. 25, 'to fall'), and this did not actually involve Pintupi and Gawurna. I found numerous examples of exact (or near-exact) homonyms of different meanings, but these were never paired with the other sound/meaning correspondences that AST would have produced. It is possible that such words did exist, but were subsequently lost, and perhaps an even wider survey (following each semantic trail *ad infinitum*) might still find traces of them. On the basis of my own investestigation, however, this seems unlikely.

So what are we to make of the homonyms that *were* found? In other parts of these world these would be dismissed without hesitation as coincidences, even those cases where meanings appear to have been swapped. There were none of *those* in the two 100 word lists. As for the other cases, where identical words have completely different meanings, why should we even consider treating these as anything other than meaningless coincidences? After all, every language has its homonyms. And if such homonyms tend to have different meanings, surely the reason is simply that homonyms whose meanings can be confused are not permitted; only the unambiguous survive. So, what has persuaded a linguist of Geoff O'Grady's standing to see it differently?

O'Grady himself gives a clue as to why this may be when he declares that, 'my philosophy in Pama-Nyungan cognate search continues to be characterized by strict adherence to the principle of the regularity of sound change.' Whilst he goes on to add that, 'perfect regularity is an unattainable chimera,' I suspect he may still have allowed himself to forget that 'Neogrammarian regularity' is a good servant but a bad master. Although he accepts that it is wrong to insist that all cognates must exhibit regular sound corresondences, it is just as wrong to say that everything exhibiting regular sound correspondences must be cognate. After all, once convergence has taken place (for whatever reason), in a regular sound system the resulting homonyms will thereafter obey the same sound laws precisely *because* they sound the same to begin with.

The other thing O'Grady refers to is the contrast in Australian languages between grammatical similarity and lexical diversity, and this would indeed best be explained by a process that affects the one more than it affects the other, and the obvious candidate is borrowing. But is this so very different from the rest of the world? The extensive borrowings that make Australian linguistics so challenging can be attributed to boring old intermarriage and the multilingualism that goes with it, same as in every other place where small language communities intermarry.

Indeed, this is borne out by the differences between Pintupi and Gawurna. Pintupi and its closest relatives expanded into a desert region that was probably uninhabited, and in consequence the matches to Pintupi words are mostly to be found in other Southwestern group languages. The area into which Gawurna and the other Yura languages expanded seems to have been inhabited already, hence the large number of matches to other P-N subgroups, such as Baagandjic and Narinyeric. It may also explain the much higher number of words with no matches, if these were borrowed from languages that are now extinct as a result of the Yura expansion event. If the grammar really is more uniform than in other parts of the world, is this because there were only other Australian languages there for them to interact with, and is the uniformity we perceive simply the result of like contaminating like?

---

[2] These figures are in fact quite conservative. A more generous treatment of the possibilities would leave just 3 Pintupi and 18 Gawurna words for which absolutely no match could be made at all.

In fairness to O'Grady, though, it must be noted that in etymology K841 he issues a specific challenge, to find a word meaning 'cover,' fitting a range of forms including ***yupa-**, that matches Umpila **yuʔay** ignorant.' I looked, and there was indeed the word **yupanpa**, meaning 'to cover with sand' in the Garadjari language.

The other factor that seems to have influenced O'Grady's judgement is that the same pairs of otherwise unlinked meanings do seem to produce homonyns again and again in Australian. All I can say is that these did not show up in my investigation of Pintupi and Gawurna. So far as that is concerned, I sought to quantify the effect of AST on a pair of 100-word lists, and on *that* basis it is clearly not a factor in determining the rate of linguistic change.

Conclusions

It therefore seems that there is no need to treat Australia as a special case, subject to a different retention rate. Leaving aside the question of whether any nominally uniform retention rate is ever really applicable in real life, it seems safe to assume that such a standard would apply as much to Australia as to anywhere else.

One final indicator is that, within its limitations, the historical record does not reveal that unusually rapid linguistic change has taken place. As Black (1997) points out, the oldest Australian source, from Captain Cook's voyage in 1770, shows no differences from the present-day version of the language surveyed.

I may seem to have been critical of O'Grady's paper, but that is simply because I saw no need to itemise the things I agreed with. Pama-Nyungan is as solid and clear-cut a family as I have ever seen, and to question its validity seems perverse. And, although I have accused him of over-reliance on reconstruction, I have no complaint with the reconstruction itself.

It also occurs to me that perhaps O'Grady has embraces Antonymic Semantic Tradeoff in order to bolster the case for Pama-Nyungan. If so, all I can say is that P-N is already too solidly established to need such help, and his case would only gain from the abandonment of those comparisons involving correspondences of sound but not of meaning.

BIBLIOGRAPHY

Black, Paul, 1997, 'Lexicostatistics and Australian Languages,' in Darrell Tryon & Michael Walsh, eds., *Boundary Rider: Essays in Honour of Geoff O'Grady*, Pacific Linguistics C-136, Canberra

Blake, Barry J., 1988, 'Redefining Pama-Nyungan: Towards a Prehistory of Australian Languages,' in *Aboriginal Linguistics* No. 1, pp. 1-90

Blake, Barry J., 1990, 'Languages of the Queensland/Northern Territory Border: Updating the Classification,' in P. Austin, R. M. W. Dixon, T. Dutton, and I. White, eds., *Language and History: Essays in Honour of Luise A. Hercus*, Canberra: Pacific Linguistics

Curr, Edward M., 1886-7, *The Australian Race*, (4 Vols.)

Dixon, R. M. W., 1980, *The Languages of Australia*, Cambridge University Press

Douglas, W. H., 1971, 'Dialect Differentiation in the Western Desert—a Comment,' in *Anthropological Forum*, 3(1), pp.79-82

Evans, Nicholas, 1988, 'Arguments for Pama-Nyungan as a Genetic Subgroup with Particular Reference to Initial Laminalisation,' in *Aboriginal Linguistics* No. 1, pp. 91-110

Evans, Nicholas and Jones, Rhys, 1997, 'The Cradle of the Pama-Nyungans: Archeological and Linguistic Spectulations,' in Patrick McConvell and Nicholas Evans, eds., 1997, *Archeology and Linguistics: Aboriginal Australia in Global Perspective*, OUP, Melbourne

Harvey, Mark, 1997, 'The Temporal Interpretation of Linguistic Diversity in the Top End,' in Patrick McConvell and Nicholas Evans, eds., 1997, *Archeology and Linguistics: Aboriginal Australia in Global Perspective*, OUP, Melbourne

O'Grady, Geoffrey, 1997, *Lexicostatistical and Other Evidence for the Homeland of the Western Desert Language*, m.s.

O'Grady, Geoffrey, 1998, 'Towards a Proto-Pama-Nyungan Stem List, Part 1: Sets J1-J25,' in *Oceanic Linguistics*, Vol. 37(2) , pp. 209-233

O'Grady, Geoffrey and Fitzgerald, Susan, 1997, 'Cognate Search in the Pama-Nyungan Language Family,' in Patrick McConvell and Nicholas Evans, eds., 1997, *Archeology and Linguistics: Aboriginal Australia in Global Perspective*, OUP, Melbourne

BIBLIOGRAPHY

Black, Paul, 1997, 'Lexicostatistics and Australian Languages,' in Darrell Tryon & Michael Walsh, eds., *Boundary Rider: Essays in Honour of Geoff O'Grady*, Pacific Linguistics C-136, Canberra

Blake, Barry J., 1988, 'Redefining Pama-Nyungan: Towards a Prehistory of Australian Languages,' in *Aboriginal Linguistics* No. 1, pp. 1-90

Blake, Barry J., 1990, 'Languages of the Queensland/Northern Territory Border: Updating the Classification,' in P. Austin, R. M. W. Dixon, T. Dutton, and I. White, eds., *Language and History: Essays in Honour of Luise A. Hercus*, Canberra: Pacific Linguistics

Curr, Edward M., 1886-7, *The Australian Race*, (4 Vols.)

Dixon, R. M. W., 1980, *The Languages of Australia*, Cambridge University Press

Douglas, W. H., 1971, 'Dialect Differentiation in the Western Desert—a Comment,' in *Anthropological Forum*, 3(1), pp.79-82

Evans, Nicholas, 1988, 'Arguments for Pama-Nyungan as a Genetic Subgroup with Particular Reference to Initial Laminalisation,' in *Aboriginal Linguistics* No. 1, pp. 91-110

Evans, Nicholas and Jones, Rhys, 1997, 'The Cradle of the Pama-Nyungans: Archeological and Linguistic Spectulations,' in Patrick McConvell and Nicholas Evans, eds., 1997, *Archeology and Linguistics: Aboriginal Australia in Global Perspective*, OUP, Melbourne

Harvey, Mark, 1997, 'The Temporal Interpretation of Linguistic Diversity in the Top End,' in Patrick McConvell and Nicholas Evans, eds., 1997, *Archeology and Linguistics: Aboriginal Australia in Global Perspective*, OUP, Melbourne

O'Grady, Geoffrey, 1997, *Lexicostatistical and Other Evidence for the Homeland of the Western Desert Language*, m.s.

O'Grady, Geoffrey, 1998, 'Towards a Proto-Pama-Nyungan Stem List, Part 1: Sets J1-J25,' in *Oceanic Linguistics*, Vol. 37(2) , pp. 209-233

O'Grady, Geoffrey and Fitzgerald, Susan, 1997, 'Cognate Search in the Pama-Nyungan Language Family,' in Patrick McConvell and Nicholas Evans, eds., 1997, *Archeology and Linguistics: Aboriginal Australia in Global Perspective*, OUP, Melbourne

APPENDIX: Lexicostatistical list for Pintupi and Gawurna.

Where Gawurna forms are given in block capitals it is because the only sources available do not allow us to be more precise (according to Edward Curr, Gawurna was extinct by 1850); likewise PARNKALLA and the various Curr lists. Otherwise, symbols are as in IPA, except that **-y-** is always a palatal semi-vowel, and a subscript dot is used to denote retroflex consonants (**ṭ**, **ḍ**, **ḷ**, **ṇ**, **ɹ̣**). As is normal in Australia, voicing is not contrastive. Please remember, these examples are intended solely to demonstrate that meanings have not changed as a result of AST, and no attempt has been made to distinguish cognates from borrowings.

1. 'armpit' Pintupi **nayaɲ-pa** Gawurna NGURANYA

Also (Wati) Kukatja **ŋayaɲpa**. Gawurna has **naya-ndi** 'to sew,' for which I do not have a Pintupi equivalent in my database. The only match I could find to Gawurna was Warwa **ŋuraɲan** 'tomorrow.' However, Gawurna 'tomorrow' (**paniŋgolo**) does not match Warwa 'armpit' (**-(m)barma**).

2. ‘ashes’ Pintupi **ɟuṇpa** Gawurna BURTA

(Wati) Kukatja **cunpa**, Wangkajunga **ɟunpa**, Yulparidja **ɟuṇpa**; Wadjarri **ɟaṇpi**. The Gawurna form is also found in Maric and Karnic with same meaning.

3. ‘belly’ Pintupi **ɟuṇi** Gawurna MUNTO

The Pintupi form is also found in Yulparidja and Wangkajunga, and beyond the Wati family in Alyawarra **aɟuni** ‘to defecate.’ The Gawurna is matched by (Ngumbin) Ngarinman and Djaru **munta** ‘belly.’ See also Curr lists No. 85 MOONTOO, No. 87 MONDA (both Narinyeric) ‘stomach.’

4. ‘big’ Pintupi **puḷka** Gawurna TAUARA

Kukatja has **pulka** (as does Warramungu), but also **tawuwaɻa** ‘big’; see also Pintupi **tawa.rra** ‘long.’

5. ‘bite’ Pintupi **paɟa-ṇu** Gawurna PAIA-NDI

Accepted as cognate by O’Grady.

6. ‘black’ Pintupi **maɻu** Gawurna PULYONNA

Wangkajunga, Kukatja, Wailbri **maɻu**; Wadjarri **maṛu**; (Nyungar) Wudjarri **maru** ‘black,’ plus Yingkarta **maɻu** ‘night.’ No direct match to Gawurna, apart from Alyawarra **irpula**. Both proto-Mantharda and proto-Kanyarra have ***puḷaṇ** ‘calf of leg.’ Also (Ngumbin) Djaru has **puʎa** and Walmajarri **puʎar** ‘calf.’ However, Gawurna ‘calf’ (**yaḷa**) does not match the only word I have in Mantharda and Kanyara for ‘black’ (Warriyangka **kupari**). Alternatively, Panyjima has **puʎa** ‘salt,’ though Panyjima ‘black’ does not match Gawurna ‘salt’ (**waru**).

7. ‘blood’ Pintupi **yirrami** Gawurna KARRO

No matches to Pintupi; no exact matches to Gawurna either, though Parnkalla has **kaɹiɲɟi**., and Warramungu **garin** ~ **gariṇ**. Njebbana has **kaɻo** ‘fat,’ though Njebbana ‘blood’ (**ganbiliːbala**) does not match Gawurna ‘fat’ (MARNITTI).

8. ‘bone’ Pintupi **tarka** Gawurna WAARPO

Also Wangkajunga, Yulparidja **tarka**, Kukatja **taɻka**; Ngatjumaya **targa**; Curr lists Nos. 62, 60 [Kingsmill] WARLPOO, No. 60 [Gason] WALPOO, Nos. 59, 61 WALPO etc.

9. 'breast' Pintupi **yipi** Gawurna NGAMMI

Also Yulparidja **yipi** 'mother; aunt (MoSi)'; Gawurna reflects pan-Australian 'breast.' At a greater remove, **yipi** is 'name' in (Karnic) Kungkari, though of course Kungkari 'breast' reflects the same ancestral form as Gawurna NGAMMI.

10. 'burn' Pintupi **kampa-ŋu** Gawurna KAMBA-NDI

Accepted as cognate by O'Grady.

11. 'by-and by' Pintupi **ŋula** Gawurna BURROBURRO

This item not in my database

12. 'chest' Pintupi **ŋarka** Gawurna KUNDO

Also Wangkajunga, Kukatja **ŋarka**, Wirangu **ŋarga** 'chest,' while Warramungu has **ŋarka-ŋarki-ɟa** 'to breathe.' (Djeragan) Walgi has **kundu** and Wailbri **kuntulkaɻi**, 'to cough.' Nukuna KOONDOO 'breasts' (Curr No. 65) and Baagandji **gundu** 'belly' each look like a secondary shift in meaning.

13. 'climb' Pintupi **tati-ṇu** Gawurna TATTE-NDI

Accepted as cognate by O'Grady.

14. 'cry [weep]' Pintupi **yula-ŋu** Gawurna MURKA-NDI

Also Wangkajunga, Kukatja **yula-**; (Ngarga) Wailbiri **yulami**; Ngatjumaya **ula-**. No match to Gawurna, but there are Nyangumarta **murka** 'salt,' Kalkatungu **murka-** 'thunder; to thunder' and Warramungu **murka** 'hair (of head).' Tears are salty, thunder may be perceived as the sky weeping; 'hair' is probably a coincidence. More remotely, there is Garrwa **murkaŋka** 'saltwater crab.' However, the fact that Gawurna 'salt' does not match any words for 'to weep' suggests that AST has not occurred in this instance.

15. 'cut' Pintupi **kuṇṭi-ṇu** Gawurna BAKKE-NDI

Also Wangkajunga **kuṇṭa-l-**, Kukatja **kuṇṭala-**; Gawurna matched by Warlbiri **bagani**, Warramungu **ɟir baga-**, plus Parnkalla BAKKE BAKKITI 'knife, chisel' and BAKKAN-WITTITI 'to pierce, to spear.' Elsewhere the same theme is reflected in Njebbana **bakabiɲi** 'to dig,' and Garrwa **babakaɲi** 'knife' and **bakaramba** 'to tear.'

16. ‘dog’ Pintupi **papa** Gawurna KADLI

Also Waljen **papa**, Wirangu **baba**. Wadjarri **papa** is ‘rain.’ However, Pintupi ‘rain’ (**kuntoro**) does not match Wadjarri ‘dog’ (**t̪ut̪u**, **want̪a**). The Gawurna form is found elsewhere in Yura: Curr No. 67 (Narrangga) KADLE, No. 65 (Nukuna) GARDLEY.

17. ‘down (loc)’ Pintupi **kaniɲɟara** Gawurna YAKKINGGA

Also Kukatja **kanincara**; Wailbri **kaniɲcani**; Malngin **kanɟura**, Walmajarri **kaniɲ** ‘below.’ The nearest matches to Gawurna, Gumbaynggir **yagin** ‘buttocks’ and (Warluwaric) Bulamu **yakiyi** ‘foot,’ are more tenuous.

18. ‘ear’ Pintupi **pina** Gawurna YURRE

Pintupi reflects pan-Australian form; Gawurna matches forms in all relevant Curr lists, plus Baagandji **yuɻi**.

19. ‘east’ Pintupi **kakaraɻa** Gawurna MARI

Also Wirangu **gagaraɻa**, Waljen **kakaraɻa**. No P-N match for Gawurna, although Wadjarri has **maliyaṛa** (as well as **kakaṛaṛa**) ‘east.’ Walmajarri has **mari** ‘far.’ Outside P-N there is also (Mangerrian) Urningangg **mereɣeŋg** ‘east.’

20. ‘eat’ Pintupi **ŋalku-ŋu** Gawurna NGARKO-NDI

Accepted as cognate by O’Grady.

21. ‘egg’ Pintupi **ŋampu** Gawurna MUKA

Also Wangkajunga **ŋampu**, and Kukatja **kampu**. In Yura, Curr No. 65 (Nukuna) MOOKA and No. 67 (Narrangga) MOKKA. In Paman Kugu-Nganhcara **muka** is ‘rock.’

22. ‘elbow’ Pintupi **ɲiku** Gawurna TIDNGI

Also Wangkajunga **ɲikuɲ**, Kukatja **nikunpa**. No matches of any kind to Gawurna—apart from (Karnic) Kalali **tiŋki** and Maljangapa **t̪iŋki** ‘knee.’ This is also reflected in Ngaliwurru **diŋgari**, and various Ngumbin **tiŋari** ‘knee.’

23. ‘eye’ Pintupi **kuɻu** Gawurna MENA

Pintupi form found in all Wati, Mantharda and Kanyara languages; Gawurna matches all of the Yura group.

24. ‘faeces’ Pintupi **kuna** Gawurna KUDNA

Accepted as cognate by O’Grady.

25. ‘fall’ Pintupi **punka-ṇu** Gawurna WORNE-NDI

Kukatja, Yulparidja **punka-la**; also found in the Ngayarda and Marngu sub-groups. The Gawurna, and also Parnkalla WORNITI, may equate to Wirangu **waṇ**, Wadjarri **waṇi-**, Yingkarta **waṇi**. The possibility of antonymic semantic tradeoff arises in Thagungwurrung and Woiwurrung **waṇa-** ‘to climb,’ though this does not seem to have involved a swap of meaning since in these two languages ‘to fall’ is **bad̪erembi** and **pulta** respectively. However, Warlbri has **bad̪i** ‘to rise (of the sun)’ versus **wantimi** ‘to fall,’ whereas Ngatjumaya has **waṇḍiŋgu-** ‘to climb uphill.’ But, even if the Warlbri words have swapped meanings, this does not affect the percentages for our subject languages, Pintupi and Gawurna.

26. ‘far’ Pintupi **tiːwa** Gawurna KARADLA

Also Kukatja **tiwa**. No match to Gawurna, unless this reflects the Wati words for ‘east’ (No. 19, above) <*KAKARADLA. Given the existance of other words for ‘east’ in **kakara** (Yulparidja) and **kaːraɹ̣a** (Djaru), this suggests ancestral ***kakaraɹ̣a**. I do not have a word for ‘far’ in Marithiel that would say whether **karedla** ‘stone’ is a result of AST. Also note that Walmajarri ‘far’ (**mari**) is the same as Gawurna ‘east.’ The fact that Gawurna also has TIWA ‘honey’ is probably a coincidence.

27. ‘fat [n.]’ Pintupi **kaṇpi** Gawurna MARNITTI

No match to Pintupi, only Karlamay and Ngatjumaya **kaṇu**. All the Yura languages have forms in MURNI, as do some Narrinyeric (Curr No. 82 MURNI, plus No. 87 MINT).

28. ‘fingernail’ Pintupi **piri** Gawurna BIRRI

Accepted as cognate by O’Grady.

29. ‘fire’ Pintupi **waɹ̣u** Gawurna GADLA

Pintupi found in all Wati languages; Gawurna matches all Yura, plus proto-Kanyara-Mantharda ***kaḷa**.

30. ‘fly [n.]’ Pintupi **muːŋu** Gawurna TAPPO

Kukatja has **muŋu**, and (non-P-N) Woolna **muŋuruŋara** ‘mosquito.’ No match for Gawurna—apart from Kuku-Yalanji **dabu** ‘honey’ and Mpakwithi **tabwa** ‘small bee.’

31. ‘food (veg.)’ Pintupi **mayi, mirka** Gawurna MAI

First Pintupi form accepted as cognate by O’Grady.

32. ‘foot’ Pintupi **ɟina** Gawurna TIDNA

Accepted as cognate by O’Grady.

33. ‘forehead Pintupi **ŋaʎa** Gawurna YUURLO

Pintupi form also found in Wangkajunga, Kukatja, Ngardi and Wailbri; Ngatjumaya has **ŋaḷa**. No matches to Gawurna, though Parnkalla YURLU ‘throat’ may be cognate if the ancestral meaning is ‘front.’ However, a different relationship would be suggested by Ngarluma and Nyangumarta **ŋaʎi** ‘neck,’ except that these languages do not have words for ‘forehead’ resembling YUURLO.

34. ‘get, take’ Pintupi **ma-nu** Gawurna MA.NKO-NDI

Accepted as cognate by O’Grady.

35. ‘give’ Pintupi **yu-ŋu** Gawurna YU.NGGO-NDI

Accepted as cognate by O’Grady.

36. ‘go’ Pintupi **ya-nu** Gawurna PADNE-NDI

Pintupi **ya-** is found throughout Pama-Nyungan. Parnkalla has PADNA-TA ‘go,’ which may also reflect Narrinyeric ‘walk’ (Curr Nos. 85 PUNAR, 86 PUNCHA and 82 PARNEUA).

37. ‘ground’ Pintupi **paṇa** Gawurna YERTA

Also Wangkajunga, Yulparidja, Yingkarta and Ngadjunma **paṇa**. Gawurna matches Curr Nos. 58 and 60 [Gason] YERTA.

38. ‘hand’ Pintupi **maɹ̣a** Gawurna MARRA

Accepted as cognate by O’Grady.

39. ‘hard’ Pintupi **mayaṇ-pa** Gawurna WILTA

No direct matches to either Pintupi nor Gawurna, except for Walmajarri **maya** ‘strong.’ Ngaliwuru **mayaḍaɲ** ‘(tree) bark, scales’ may also be related to this. No matches of any kind to Gawurna, except perhaps as a component of Gayardild **muriwilwilda** ‘a type of shell.’

40.	'head'	Pintupi **kata**	Gawurna MUKARTA

Pintupi **kata** also found in Kukatja, Wangkajunga and Yulparidja, plus Karlamayi, Ngatyumaya and Nyungar. No matches to Gawurna, though if MU- were some sort of prefix (and Wadjarri has **maka** 'head,' while Kukatja, Djaru and Walmajarri have **makaṭa**, and Wailbri **mukaḍa** 'hat'), these could be cognate after all. Pintupi 'hat' is **mukati**.

41.	'head hair'	Pintupi **yuru**	Gawurna PADLO

The only match to Pintupi is Yindjibarndi **yuruṇ** 'fur, hair.' However, there are also Warlpiri **yuru** and Kalkatungu **yuɹ̣uṭu** 'belt,' which may be cognate if they refer to a (commonly-found) hair-belt. My Gawurna list (Amery and Simpson 1994, provided by Tim Usher) has no word for 'hair,' and the only PADLO on that list is 'to want; starve.' The relevant Curr list, No. 68, has YOKA 'hair'—though there are no matches to this either, apart from Djaru, Walmajarri and Mangarla **yuka** 'grass.' Languages often have a single word for 'hair' and 'leaves,' from which 'grass' is only a short step away.

42.	'hear'	Pintupi **kuli-ṇu**	Gawurna YURREKAITYA-NDI

Also Kukatju andWangkajunga **kuli-**, plus Panyjima **kuliy-lku** and Martuthunira **kuliya-**. The Gawurna is a compound including YURRE 'ear.' No matches to -KAITYA- though.

43.	'heart'	Pintupi **kuṭuṭu**	Gawurna KARLTO

Pintupi word also found in Wadjarri, Wirangu, Ngatjumaya and proto-Kartu, plus **kututu** and **kududu** in various Nyulnyulan languages. No match to the Gawurna

44.	'hit (with hand)'	Pintupi **pu-ŋu**	Gawurna KUNDA-NDI

Pintupi form found throughout the Southwestern group. No matches to Gawurna in Yura, but in Maric we commonly find **gunda-** 'to fight, hit.' Further afield we have Larigiya **gwanda** 'fighting stick,' and Garrwa **kuṇḍa** (and Yanyuwa **wuṇḍa**) 'stick, tree.' The shift of meaning from weaponry to combat is also found in (Mayapic) Ngawun **kunda** 'to kick.'

45.	'I [1 sg.]'	Pintupi **ŋayu.lu**	Gawurna NGAI (Nominative)

Accepted as cognate by O'Grady.

46.	'knee'	Pintupi **muṭi**	Gawurna MAMBA

Pintupi form also found in Wirangu, Wangkajunga, Kukatja, Wadjarri and Ngatjumaya. No match to Gawurna, only Yidiny **mamba** 'bitter, sour.' However, Yidiny 'knee' (**buŋgu**) does not match Gawurna 'bitter' (**kica**). Similarly, though Birri has **mamba** 'copulation,' the

Gawurna word (**parta**), does not match Birri 'knee' (**madin**).

47. 'leaf' Pintupi **parka** Gawurna TINKYO

Also Panyjima **parka** and Wirangu **barga**. No match to the Gawurna, apart from Baagandji **tiːŋka** 'hip' (additional vocabulary to Curr No. 75).

48. 'leave it' Pintupi **wanti-ŋu** Gawurna WONDA-NDI

Accepted as cognate by O'Grady (which is lucky, as I do not have this item in my lists).

49. 'liver' Pintupi **yalu** Gawurna TANGKA

Pintupi form also found in Wangkajunga; also Wailbri **miyalu** 'belly.' Baagandji has **tʌːŋ-gʌɲa** (Curr No. 75, TUNG-GUNYA). Otherwise, only Ngatjumaya **tanka-** 'to look, see.'

50. 'long' Pintupi **tawa.ra** Gawurna TOWI.NNA

Accepted as cognate by O'Grady. However, Gawurna TAUARA 'big' looks a better match.

51. 'be lying down' Pintupi **ŋari-ŋu** Gawurna WANDE-NDI

The Pintupi form is also found in Yulparidja, Wangkajunga, Kukatja. Parnkalla has WANNITI 'to lie;' other Yura have WANDETA (Curr No.62), MEYA WANDIE (No. 58), WONDINIE (No. 67) 'to sleep.' Outside Yura we find Malngin **waṇan** and Djamindjung **waṇaɲ** 'to lie (stative).'

52. 'many' Pintupi **piṇi** Gawurna TAUATA

No equivalent of Pintupi **piṇi** elsewhere in Southwestern, though my lists also have **tuta**. The Gawurna form appears related to TAUARA 'big' and TOWA.NNA 'long.'

53. 'meat' Pintupi **kuka** Gawurna PARU

Pintupi form also found in Wadjarri, Yulparidja, Wangkajunga and Kukatja. The Gawurna, meanwhile, matches Parnkalla **paṭu** and Ngatjumaya **paɹ̣u**.

54. 'moon' Pintupi **kiṇaɹ̣a** Gawurna PIKI

The only match to Pintupi **kiṇaɹ̣a** is Wailbri **kiṇṭaŋi** 'moon, month.' However, my Pintupi list has only **piɹ̣a**, which matches the rest of the Wati group. No matches to Gawurna either (apart from Wailbri **pikiɹ̣i** 'broad woomera'). In Muruwari **piki** is 'wing,' though Muruwari 'moon' (**kiyan**) does not match Gawurna 'wing' (TARLTI). However, my Gawurna list also has KAK(K)IRRA ‘moon,’ which closely matches the ‘Common Australian’ form proposed by Arthur Capell (*KAKARA).

55. ‘mouth’ Pintupi **ɟaː** Gawurna TAA

Accepted as cognate by O’Grady.

56. ‘name’ Pintupi **yini** Gawurna NARRI

The Pintupi form is found throughout Wati, Mantharda and Kanyara. Walmajarri has **yini** ‘name’ versus **naruku** ‘namesake,’ though the latter is also found in (Djeragan) Kitja and (Bunaban) Guniyan. In Kulinic we find Woiwurrung **narin**, ‘name,’ Wemba-Wemba **ɲariŋin** and Madi-Madi **n̪eŋin** ‘your name,’ and various Maric and Bandjalang **nari** ~ **n̪ari** ‘name.’

57. ‘nape [of neck]’ Pintupi **ŋuṇṭi** Gawurna WAALTU

Also Wirangu **ŋuṇḍi** ‘nape,’ plus Yulparidja **ŋunti** and Wangkajunga **ŋuṇṭi** ‘shoulder.’ The only match to Gawurna is Wirangu **walduldu** ‘cloud,’ but Gawurna ‘cloud’ (**makko**) does not match Wirungu ‘nape.’

58. ‘north’ Pintupi **kayili** Gawurna (KOUANDA)

Pintupi form found throughout Southwestern group. No match to Gawurna, unless Nyulnyulan forms in **yawan** and **waḍi** are both the result of initial lentition from ***gawaṇḍi**.

59. ‘nose’ Pintupi **muʎa** Gawurna MUDLA

Accepted as cognate by O’Grady.

60. ‘now, today’ Pintupi **kuwari** Gawurna NATTA

Pintupi form also found in Yulparidja and Wangkajunga, plus (Ngayarda) Martuthunira and Nyangumarta. No matches to the Gawurna; in the Curr lists the other Yura languages have forms in YARRA ‘today,’ which possibly match the other word in my Gawurna list for ‘now, today’: **yella**.

61. ‘old man’ Pintupi **yiṇa** Gawurna (BALKA GERLIE)

Pintupi form also found in Wankajunga and Kukatja; Yulparidja has **yiṇa** ‘father, father’s brother.’ Why the Gawurna is in brackets, I do not know. BALKA matches Wailbri, Malngin, and Ngarinman **pulka**.

62. 'one' Pintupi **kuɟu** Gawurna KUMA

The Pintupi form matches Wangkajunga, Kukatja and Waljen. Wirangu **guma**, however, matches the Gawurna.

63. '(aboriginal) person' Pintupi **yaṇaŋu** Gawurna MEYU

Pintupi 'person' matches Wangkajunga **yaṇaŋu** and Kukatja **yanaŋu** 'body.' No exact match to the Gawurna either, apart from Yingkarta and Wadjarri **mayu** 'child,' and (Djamindjungan) Nunagali and Ngaliwurru **mayi** 'man, person.'

64. 'rib' Pintupi **ɲimiṛi** Gawurna TINNINYA

Pintupi form matches Wankajunga **yimiṛi**, **ɲiminpa**; also Panyjima **ɲimiliri** and Martuthunira **ɲimi**. The only match I have to Gawurna is Parnkalla **inninye** (which often loses the initial consonant found in Gawurna), unless you also accept Pintupi **ɲutinu** 'shoulder.'

65. 'rotten' Pintupi **yuṇa** Gawurna TUNGKI

Also Wangkajunga and Yingkarta **yuṇa**. The nearest matches to Gawurna are (Karnic) Birriya, Punthamara and Maljangapa **ṭuŋka**. Wangkajunga has **tuŋku** 'a boil.'

66. 'see' Pintupi **ɲa-ŋu** Gawurna NA.KKO-NDI

Accepted as cognate by O'Grady.

67. 'short' Pintupi **muṭu** Gawurna KURLTO

Also Wirangu **muḍu** 'short,' and proto-Mantharda ***muṭu** 'small.' No match to Gawurna at all, except perhaps Parnkalla **kurto** 'steep.'

68. 'sit' Pintupi **ɲina-ŋu** Gawurna TIKKA-NDI

The Pintupi form is found throughout the Wati, Ngarga, Ngadjunmaya, Kanyara families and beyond. Other Yura languages have TICKA (Curr No. 64), TEKUNNY (No. 65), DIKKANIE (No. 67), TEEKUNDA (No. 62).

69. 'skin' Pintupi **miɲara** Gawurna MAIKUNDO

No matches to either form—unless Gawurna is a compound including KUNDO 'chest.' The other half of the compound may match Yota-Yota **maiyi** 'eyelid,' versus **mi(yul)** 'eye.' However, in the Sydney Language **mai** means 'eye' rather than the skin that covers it.

70. 'sky' Pintupi **yilkaɹ̣i** Gawurna KARRA

No exact match, but **yalkiɹ̣i** found in Wangkajunga, Ngardi, Walmajarri. Gawurna KARRA also means 'high, up.'

71. 'small' Pintupi **ɟuku-ɟuku** Gawurna TUKKU-TYA

Accepted as cognate by O'Grady.

72. 'smell it' Pintupi **paṇṭi-nu** Gawurna MARTO.MAILTYA-NDI

Pintupi found throughout Southwestern group. No match to the Gawurna (which also means 'taste'), apart from Arabana **maḍu** 'sweet; (a) taste.'

73. 'smoke' Pintupi **puyu** Gawurna PUIYU

Accepted as cognate by O'Grady.

74. 'snake' Pintupi **liru** Gawurna METITYA

Also Pitjantjatjara **liru**. No matches of any kind to Gawurna, except Wailbri **maḍici** 'elbow.'

75. 'south' Pintupi **yuḷpaɹ̣ira** Gawurna --

Wirangu, Wankajunga and Kukatja have very similar forms to the Pintupi. O'Grady gives no Gawurna form for this. My list has **padba** - **patpa**, for which I have no match elsewhere.

76. 'speak' Pintupi **waŋka-ŋu** Gawurna WAANGGA-NDI

Accepted as cognate by O'Grady.

77. 'spear' Pintupi **kuḷaṭa** Gawurna KAYA

The Pintupi form is common to the Wati group. Parnkalla also **kaya**. Otherwise, perhaps also (Kulinic) Wemba-Wemba **guyən** and Madi-Madi **guyuni**. Dharumbal has **gaya** 'reed' (reeds are often used to make spears), but Gawurna 'reed' (**wito**) does not match Dharumbal 'spear' (**ganai**). Similarly, Njebbana has **kaya** 'fat,' but Gawurna 'fat' (MARNI) does not match Njebbana 'spear' (**dibbara**).

78. 'spit, saliva' Pintupi **wiṭa** Gawurna TADLI

Panyjima has **wiṭa**, plus Mayi-Yapi and Ngawun **wit̪a** (- **wika**) 'saliva.' Parnkalla has TADLI 'spittle, foam,' but see also Nyungar **tel̪** 'saliva.'

79. 'stand' Pintupi **ŋaɹ̣a-ŋu** Gawurna YUWA-NDI

Pitjantjatjara **nara-**, Yulparidja **ŋaɹ̣a-**, Kukatja **ŋaɹ̣aku**. No direct match to Gawurna, only Nyangumarta, Kukatja, Yulparidja, Wangkajunga 'give,' and Pallanganmiddang 'knee.' This latter at least involves roughly the same body part as the Gawurna verb. Otherwise, there are also (Yidinyic) Djabugay **yuwa-l** 'to bend,' (Paman) Wik-Mungkan **yuwa** 'cloud' and (Kulinic) Warrnambul **yuwa** 'to sleep.' However, Gawurna **yokunna** 'crooked, bent' does not match Djabugay **ɟana-y** 'to stand,' nor does Wik-Mungkan 'stand up' (**tana**) match Gawurna 'cloud' (MAKKO). I have no Warrnambul word for 'stand.'

80. 'star' Pintupi **piṇṭiti** Gawurna PURLE

Also Ngatjumaya **piṇḍir**. Gawurna form found throughout Yura group, and also in Narrinyeric (Curr No. 87 BURL and No. 82 BOORLI).

81. 'stone' Pintupi **puḷi** Gawurna PURE

Accepted as cognate by O'Grady.

82. 'sun' Pintupi **ɟiṇṭu** Gawurna TINDO

Accepted as cognate by O'Grady.

83. 'tail' Pintupi **wipu** Gawurna WORTI

The Pintupi word is also found in Wangkajunga and Nyangumarta. No matches at all to Gawurna, except for Nyungar **woṭ** 'throat.' However, Nyungar 'tail' (**muur**) does not match Gawurna 'throat' (**waŋki**).

84. 'thigh' Pintupi **ɟunta** Gawurna KANTI

Also Karlamayi **ɟunta**, proto-Kartu ***cuṇṭa**. Gawurna matched by Yura ANTI (Curr No. 61), KUNDIE (No. 62), KANTIE (No. 64), GANTEE (No. 67), and perhaps also Kutatja **kaɲci**. In Paman we also find Wik-Mungkan **kanti** (- **kaːnɟ**) 'bone.'

85. 'this' Pintupi **ŋaːɟa** Gawurna INNA

Yulparidja **ŋaː**, Kukatja **ŋaːca**. Parnkalla also **inna**.

86. 'throat' Pintupi **liri** Gawurna YURNE

Also Kukatja **liɹ̣iwa**, Parnkalla YURNE. Otherwise, Warramungu **liri** 'lower arm,' Maung **liri** 'anger,' and Bunaba **liri** 'guts, intestines.' However, Pintupi 'arm' (**waku**) does not match

Warramungu 'throat' (**waŋgur**), and Maung 'throat' (**maŋalŋal**) does not match Pintupi 'angry' (**piki**); I have no Pintupi word for 'guts' in my lists. My Gawurna list does have **waŋki** for 'throat' (and not YURNE), but Gawurna 'arm' (**turti**) does not fit 'throat' in any language. Nyatjumaya does have **wanku** 'arm,' but Ngatjumaya 'throat' (**kuḷu**) does not match Warramungu **liri** 'lower arm,' or Gawurna **turti**.

87. 'tongue' Pintupi **ɟaḷiɲ-pa** Gawurna TADLANYA

Accepted as cognate by O'Grady.

88. 'tooth' Pintupi **kaṭiṭi** Gawurna TIA

Only Kukatja **kaṭiṭi**, Wailbri **kaṭiḍi** and Wirangu **gaḍiḍi**. The Gawurna form is found only in Curr list No.67 (Narrangga). Otherwise, there is only Kalkatungu **ntia** 'stone.'

89. 'tree' Pintupi **puṇu, waṭa** Gawurna WIRRA

Pintupi **waṭa** is found throughout Wati; **puṇu** found more widely in Ngumbin, Ngarga and Nyungar groups. My Gawurna list shows WIRRA as 'forest, wood, bush,' and matches it with Nukunu **wira** 'forest.' Otherwise, the only forms I have in **wira** are Ngayarda 'boomerang,' Ngaliwuru 'hair, fur,' Mirning 'rain,' Gippsland 'to swim,' and Ngadjunma and Yidiny 'vulva.' Where my lists have equivalent words, these do not show evidence of antonymic semantic shift.

90. 'two' Pintupi **kuɟara** Gawurna PURLAITYE

The Pintupi form is found all over Australia. Gawurna is matched by numerous Kulinic forms in **pulac(a)**, plus Colac **pulatuk** and Pallanganmiddang **poliṭap**.

91. 'up' Pintupi **kankara** Gawurna KARRA

The Pintupi form is commonly found elsewhere with the meaning 'above.' Though O'Grady does not count these two forms as cognates, I have no doubt of their common origin.

92. 'urine' Pintupi **kumpu** Gawurna KUMBO

Accepted as cognate by O'Grady.

93. 'water' Pintupi **kapi** Gawurna KAUWE

Accepted as cognate by O'Grady.

94. 'west' Pintupi **yapura** Gawurna WONGGA

No match to Pintupi **yapura**, but Pintupi also has **wiluɻara**, which is found in Wirangu too. Also, in (Maric) Gangulu there is **yabura** 'west.' The nearest matches to Gawurna are (Bandjalangic) Waalubal **woːŋgaːn** 'south,' Wika-Pakanh **wonkama** 'wind' and Ngandi **woŋo** 'clear sky.' However, Gawurna 'wind ' (**warri**) does not match Wika-Pakanh 'west' (**kuuwa, kumanta**), and Ngandi 'west' (**ŋani**) does not match Gawurna 'sky' (**ŋaiera**). I have no word in Waalubal for 'west.' None of the other possibilities (**wonga** 'pigeon' in the Sydney Language, Baagandji **wongga** 'meat' and **woːng-a** 'to walk,' Curr No. 75) have equivalents suggestive of AST.

95. 'what' Pintupi **ɲaː** Gawurna NGANNA

The Pintupi is common interrogative base in Southwestern, while the Gawurna form also appears in Yulparidja and (Marngu) Garadjari.

96. 'where' Pintupi **yaːʎɟi, waɲɟa** Gawurna WAADA

Second Pintupi form accepted as cognate by O'Grady.

97. 'who' Pintupi **ŋanaɲa** Gawurna NGANNA

Accepted as cognate by O'Grady.

98. 'wind' Pintupi **waɭpa** Gawurna WARRI

The Pintupi form is found throughout Wati; Gawurna also appears in Parnkalla and Wirangu. At a further remove there are Nyangumarta **wari** 'cold,' Gumbaynggir **wariː** 'east,' Kulinic **wariɲ** 'sea,' and Yugambeh **wariŋ(gal)** 'cold' (versus **wariŋ** in the other Bandjalang dialects).

99. 'woman' Pintupi **miɲma** Gawurna NGAMMAITYA

Also Pitjantjatjara **miɲma**; Curr No. 84 (Yitha-Yitha) NGAMMAITYU. Neither found more widely.

100. 'you (sg.)' Pintupi **ɲuraɲa, ɲun.tu** Gawurna NINNA

One of the two Pintupi forms (**ɲun.tu** presumably) accepted as cognate by O'Grady.

Rebuttal by Geoff O'Grady

I found Paul's comments extremely collegial and Pama-Nyungan friendly. For thirty-four years I've been trying to convince Dixon of the validity of Pama-Nyungan (aided by former students Hendrie, Fitzgerald, and Chen) by unearthing hundreds, nay thousands, of putative Pama-Nyungan cognates – all in vain. My more formal comments and rebuttal to Paul Whitehouse now follow.

Yes, I agree that the pronoun *ngali* 'first person dual inclusive' is an excellent diagnostic for the Pama-Nyungan family as a whole. Yes, I have neglected taxonomy shockingly, all in the name of pressing on with the discovery of yet more cognates. Ken Hale's dictum 'let it emerge!' has always been my guiding light. But Paul is dead right! (As it happens the contributors to the recent [2004] book 'Australian languages: Classification and the Comparative Method by Claire Bowern and Harold Koch, eds.) have gone a long way towards rectifying O'Grady's sin of omission in the matter of taxonomy.

As to my placing Yuulngu with Kanyara and Mantharda 45 years ago (supported much later by Frances Morphy), I am struck by the fact that lexicostatistic percentages shared by Yuulngu actually increase as one moves southwest away from Arnhem Land, peaking out at 20% as you reach Northwest Cape -- 1600 miles away.

NAME TABOO. Paul is 'right on' in this regard. I agree with him entirely.

ANTONYMIC SEMANTIC TRADEOFF (AST). Here I do insist on sticking to my guns. Let's start the rebuttal in the southwest corner of Australia, where Northern Nyungar *thungka* is 'ear' and *puja.rr* (with fossilized [*–rr*] suffix) is 'ground'. But in Nyangumarta, *jungka* is 'ground' and in Gupapuyngu *buthu.ru* is 'ear' (there are more languages with cognates, but I am aiming to get this to you at the earliest possible). 'Nothing unusual about this', one can say. But wait! (2) Warlpiri *langa* is 'ear' and Warnman *langa* is 'ground'. (3) Warnman *mu(r)na.rta* is 'ear' and Gupapuyngu *muna.tha* is 'ground'. (4) Wirangu, etc. *yuri* is 'ear' and Pintupi *yuri.l-pa* is 'an open space (of ground, presumably). (5) Warlpiri *walya* is 'ground' and Nyangumarta *walya* is 'leaf' [1] (known to be related to 'ear' in some Pama-Nyungan languages – as Timothy Usher reminded me). Finally, (6) the clincher Yir Yoront *pin* has both 'ear' and [ground-related] meanings in its range of referents. (Barry Alpher can back this up and has a plausible explanation for the connection between 'ear' and 'ground'). O'Grady (1979) has more on this. Note, further, Nyangumarta suffix *–kurlu* 'lacking' and Warlpiri *–kurlu* 'having'; Nyangumarta *pipi* 'mother' and Umpila *pipi* 'father'. At back of all this, bearing in mind that Australia is really just one culture area, is a probably widespread tradition of antonymy. Ken Hale highlighted a Warlpiri custom at male initiation in which the young men are required to say everything in the opposite. Example: if you want to say, 'give me matches.' The correct way to word the request is 'Withhold water from him'. He reported all this in 1971 in 'A note on a Warlbiri tradition of Antonymy' in an interdisciplinary reader edited by Danny Steinberg and Leon A. Jacobvitz (Cambridge University Press) which I stupidly forgot to mention in my article --.

---

[1] Editor's note: 'leaf' and 'ear' are virtually interchangeable in North Omotic languages. -- HF

The way in which Paul built on my Pintupi-Gawurna Test Lists I found very imaginative and instructive. Antonymic Semantic Tradeoff is shown by him to be not all that common, but it's there! (Much more commonly in Pama-Nyungan, one finds just Antonymic Semantic Change, in which a given root descends in some languages meaning 'short', for example, and 'long' in others. It's there!) By the way, 'armpit' in Pintupi begins with a velar nasal, not an *n-*

[Editor's note: i.e., initial *ŋ-* or *ng-* .]

The Global Distribution of *(P)APA* and *(T)ATA* and their Original Meaning

by Alain Matthey de l'Etang* and Pierre J. Bancel**

Abstract: In previous articles (Bancel & Matthey de l'Etang 2002, Matthey de l'Etang & Bancel 2002) we studied the global etymology *(K)AKA* along with its probable original Proto-Sapiens meaning, 'male elder on the mother's side' (GdF, MB, B+), consistent with a kinship system that recognized relatives according to sex, status based on age, and filiation groups. Two more worldwide etymological series are added here, namely *(P)APA* and *(T)ATA*, the origin of which can be also traced back to the Proto-Sapiens language. These two etyma clearly referred to the male elders on the father's side (F, FB, B+, GdF). Such a semantic pattern constitutes the exact paternal counterpart of the *(K)AKA* kin class. The new light it sheds on our ancestral kinship system gives additional strength to our hypotheses regarding the nature of this system.

1. INTRODUCTION

The existence in most of the world's languages of phonetically similar terms designating the father F and the mother M has been until recently explained as the result of convergence. Two among the articles dedicated to the nursery words *PAPA* and *MAMA* certainly marked a milestone in the history of linguistics. In 1959, Murdock made factually evident this global "convergence", intuitively known to many linguists, by means of hundreds of examples drawn from kinship terminologies[1]. Soon after, in his famous article "Why Mama and Papa?", Jakobson (1960) launched an explanation to these similarities that remained unchallenged for decades.

Jakobson's claim was that *"non historically related"* languages coin similar nursery words for father F and mother M as an adaptation to the phonetic ability of nursling, initially limited to the consonants [p, b, t, d, m, n], and to the vowels [a, ə]. Words built up with nasal consonants would have naturally referred to the mother M, by virtue of a spontaneous association made by the baby between his mother and his own nasal murmur, emitted while suckling. Words built up from oral stops would, in turn, have been associated with the father F, for reasons, one must say, anything but clear in Jakobson's formulation.

In 1994, Merritt Ruhlen established another global series of kinship terms *KAKA* ('uncle, elder brother') that could not have resulted from convergence but had been inherited from an ancestral language. On this basis, he questioned for the first time Jakobson's explanation for the global distribution of the nursery words *PAPA* and *MAMA*, suggesting that these two series probably involved, at least partially, an inherited component.

---

* Association d'études linguistiques et anthropologiques préhistoriques (AELAP, Paris, France), and Skidmore College (Saratoga Springs, New York); mail to a.matthey@free.fr.

** AELAP (Paris, France), and Société de linguistique de Paris (France).

[1] This "convergence" was already known to XIXth century historians. In 1852, Buschmann published a list of terms for father F and mother M taken from different languages and displaying the canonical *PAPA* and *MAMA* shapes. Sometimes afterwards, in his famous book *The Origin of Civilisation and the Primitive Condition of Man* (1870, p. 346 *sqq.*), Sir John Lubbock issued his own list of parental terms, notably based on Koelle (1854) for African languages. Both studies were quoted by Westermarck in his *History of Human Marriage* (1921, 5th edition, vol. 1, p. 242). Koelle's relevant terms are included in our own documentation.

In the first of our papers devoted to the same global kinship etymon *(K)AKA* (Bancel & Matthey de l'Etang 2002), following Ruhlen's line of reasoning, we analyzed in greater detail the numerous weaknesses of an explanation relying on sound symbolism. With regard to the 363 cognates of *(K)AKA* gathered from 432 complete kinship terminologies worldwide, and the hundred others collected from various word lists, we concluded that the only satisfactory explanation for the origin of this series was a common descent from a language ancestral to all known human languages. This conclusion led us to further anthropological developments. In our second paper (Matthey de l'Etang & Bancel 2002), we were able to clarify the original classificatory meaning of *(K)AKA*: 'elder brother B+, mother's brother MB, grandfather GdF', *i.e.* the male elders on the mother's side (or elders belonging to a group to which the mother M belongs). This in turn allowed us to tentatively characterize some of the features of our ancestral kinship system, like gender recognition, status depending on age and membership to a filiation group.

In the present study, our first concern will be to establish the etymological validity of two well known global kinship series, namely *(P)APA ~ (B)ABA* and *(T)ATA ~ (D)ADA* – which were precisely subject of Murdock's and Jakobson's investigations. We have compared some 1,600 languages worldwide (1,080 fairly complete kinship terminologies and some 500 other incomplete kinship glossaries).

Our second concern will be to show that the only explanation for the existence of these etymological series is their common origin in the Proto-Sapiens language. We will approach this question by challenging some of the arguments, involving numerous linguistic examples, that have recently been opposed by Trask (s.d.) to the idea that kinship nursery terms are inherited from the Proto-Sapiens language.

Finally, we will envision the meaning of the etyma *(P)APA* and *(T)ATA* from an anthropological viewpoint, showing that both refer to male elders on the father's side. This classificatory meaning will be evaluated in light of the mirroring classificatory meaning of *(K)AKA* ('male elders on the mother's side), and it will be shown that both kin class are compatible with a kinship organization, already outlined in Matthey de l'Etang & Bancel (2002).

2. METHODS

In order to put the convergence hypothesis under scrutiny, Murdock selected words specifically designating the father F or the mother M, showing how overwhelmingly the sound sequences combining consonants [p, t] and the vowel [a] were attached to the paternal entity, while the sound sequences combining consonants [m, n] and the vowel [a] were attached to the maternal entity. By privileging the father and mother relationships in his comparison, Murdock gave credence to an opinion that, at the time, was intuitive. At the same time, he went short of all the other meanings that these sound sequences possibly conveyed. Needless to say, a truly representative semantic evidence is necessary for any kind of lexical comparison.

Our methods, extensively presented in our previous articles on *(K)AKA*, can be summarized as follows.

1. Phonetically compare kinship terms from our global set of kinship terminologies to the canonical forms *(P)APA ~ (B)ABA* and *(T)ATA ~ (D)ADA*. The validity of these phonetic series will depend on the phonetical proximity – graded on a three-step scale – of the potential cognates with the canonical forms *(phonetic consistency),* and on the extent of their distribution through linguistic families and continents *(geolinguistic validity).*
2. Assess the *semantic consistency* of the series, determining to which degree the meanings of the terms retained in the phonetic series scatter or converge towards some salient kin relationship(s).
3. Review the different explanations accounting for the phonetic and semantic consistencies and the global distribution that a series may display.
4. Establish the *semantic representativity* of each of the numerically salient positions by determining their geolinguistic distribution. Each salient relationship will be considered representative of the original (individual or classificatory) meaning of the etymon, provided that cognates referring to this particular relationship are distributed throughout a substantial number of language families.

5. Transfer the original – individual or classificatory – meaning on a genealogical diagram for anthropological interpretation. Semantic patterns will be evaluated according to established kinship patterns and/or type of kinship systems.

3. THE *(P)APA* AND *(T)ATA* ETYMOLOGICAL SERIES

3.1. THE PHONETIC SERIES

3.1.1. The phonetic series *(P)APA ~ (B)ABA*

Potential cognates of the forms *(P)APA ~ (B)ABA* are graded according to their contribution to the phonetic consistency of the series.

The first category contains terms reflecting all the canonical phonemes such as Uzbek *baba* F, GdF, Sekani *abba* my F, Oromo or Naron *aba* F, Dogon or Marathi *ba* F, Mayoruna *papa* F, FB, Korean *appa* (childish) F, Konzo or Rumsen *apa* F, FB, Lushai or Wambaia *pa* F, FB, Comanche *ap* F, MZH. Adjunction of a glottal stop is admitted, such as in Patwin *ʔåpa* GdF, Arabic *ʔab* F or Didra *baʔ* F.

The second category contains terms exhibiting substantial phonetic changes (and sometimes affixal adjunctions) but remaining at a small phonetic distance from the etymon and thus strongly contributing to the validity of the series. Such are Gujarati *bāpu* F, Beliyan *fâbá* F, FB, Burmese *a-pha* F, Bayso *aabo ~ abo* F, FB, !Xam *ibo* F, Northern Wintun of Shasta County *hapa* F, uSüt-vare *vâv* GdF, Jate *afɔ́ɔ́* F, FB, Bambara *fà* F, Sere *và* F, Khalka *av* F, Kotoko *abā-gẹnẹ* F, Chahar *ab-aga* FB, Chukchee *apai-nin* GdF, Pnar *papun* MF.

The third category contains even more differentiated terms such as Dinka *wa ~ awa* F, Zaysse *awaa* F, Murngin *wāwa* B+, Kaling *'wa* B+, Z+. Since *w* may have evolved from different source segments (w < *k ~ *g ~ *p ~ *b), their phonetic shape may result from an evolution from other potential etyma such as *(K)AKA*. We retained such terms only when found in languages belonging to linguistic families where other words, closer to the canonical phonetic pattern and semantically similar, are also present. For instance, in the Gunwinyguan group of Australian, Ngandi *wa'wa* B+ is a close correlate of Wardaman *ba-pa* B+, FF, SS; or, in the Western Nilotic group of Nilo-Saharan, Shilluk *wa ~ wia* F, FB and Nuer *gwa* F, FB, MZH, FZH correspond to Lango *papa* F, FB. Because of their weak phonetic relation with the etymon, they only marginally contribute to the etymological validity of the series.

From the exhaustive study of the 1,080 kinship terminologies, we obtained 986 potential reflexes, which are listed in Appendix A. Among these reflexes, 427 are listed under the first, 422 under the second, and 137 under the third phonetic category. The first and second category cognates are overwhelming (86 % of total) and unquestionably verify the phonetic consistency of the series.

3.1.2. The phonetic series *(T)ATA ~ (D)ADA*

Out of the 1,080 languages for which we have complete kinship terminologies, 446 languages provide 632 reflexes, to which add 121 more reflexes from incomplete word lists.

The first category contains terms such as Pali *tata* F, Gotic *atta* F, Middle Turkic *ata* F, Cornish *tat* F, Marathi *ta* F, Albanian *at* F, Avar *dada* 'dad,' Zaysse *adda* F, Idoma *áda* F, English *dad*, Hatti *da* F, Ugaritic *ád* F. Adjunction of a glottal stop is admitted, as in Wailaki *taʔ* F.

The second category contains terms as Cebuano *tatay* (address term) F, Arabana *taru* WF, Aztec *tatli* F, FB, Tjungundjji *naita* F, FB, Basque or Moni *aita* F, Nez Perce *tóót* F, Arawak *itti* F, FB, MB, Gilyak *yt-k* F, FB, *at-k* FF, Adyghe *tə́* F, Briton (*ma*)*zad* my F etc.

No potential cognates from the third, weaker category have been retained so far.

These potential cognates from the first two categories are listed in Appendix B. Among these cognates, 308 are listed under the first category and 324 under the second.

3.2. GEOLINGUISTIC VALIDITY OF THE SERIES

The geolinguistic validity of the *(P)APA* ~ *(B)ABA* series is fully confirmed by its global distribution. Cognates are found on every continent, in all the linguistic megaphyla and in most of the languages families at all levels: human languages are covered at a global level. 666 languages out of 1,080 provide reflexes. Thus, more than one language out of two (61%) in our sample displays reflexes of *(P)APA* ~ *(B)ABA*. But we must also mention that 335 supplementary languages, for which we do not have extensive lists of kin terms, also provided 449 reflexes which have been excluded from our statistical account. As a whole, this series is even more impressive than the *(K)AKA* series.

The geolinguistic distribution of the *(T)ATA* ~ *(D)ADA* series is also fairly global. A majority of linguistic stocks is also represented, a few of which, however – Indo-Pacific and Australian – do not provide a lot of convincing reflexes.

It is also worth mentioning that numerous reconstructed proto-languages are included in both series (Appendices A and B).

3.3. SEMANTIC VALIDITY OF THE SERIES

Table I displays the various meanings covered by the *(P)APA* forms in the 666 languages of our sample where they are present. The first row gives the number of reflexes referring to each specific kin relation. As a lot of terms are classificatory, *i.e.* they refer to several kin types like father F, father's brother FB, mother's sister's husband MZH, etc., we took into account only one focal meaning (the closest to ego, in this case the father F and the father's brother FB). When reflexes refer to two relationships equivalent in terms of proximity, we took both relationships into account, for example sister Z and brother B, grandmother GdM and grandfather GdF, or even father's brother FB and mother's brother MB. Consequently, the total number of relationships is higher than the number of reflexes. Of course, when several terms phonetically very close and identical in their meaning are reported in a given language, only one of these phonetic variants is taken into account.

Total relations	F	F/FB	FB	GdF	B/B+	GdM	GdPt/GdCh	GdCh	FZ	MB	Z/Z+	M	Others
1,029	**288**	**106**	**100**	**134**	**100**	49	42	38	36	33	27	20	42
%	**28**	**10.3**	**9.7**	**13**	**9.7**	4.7	4	3.7	3.5	3.2	2.6	1.9	5.5

Table I. The semantic distribution of *(P)APA* ~ *(B)ABA* reflexes.

Far from being dispersed over the kinship semantic field, 71% of the relationships covered by the reflexes of *(P)APA* gather in a cluster including the father F, the father's brother FB, the grand-father GdF, and the (elder) brother B+. This parental class is of great semantic consistency, as it is only composed of male elders.

All the other relationships that show up in the table are of less significant statistical value. We will see below why all of them (except maybe the reciprocal relationship grandparent GdPt – grandchild GdCh) have to be eliminated from the tentative reconstruction of the original meaning of the etymon *(B)ABA* ~ *(P)APA*.

Table II display the various meanings covered by the *(T)ATA* forms in the 488 languages of our sample where they are present. Calculations have been made according to the same procedure as for table I above.

Tot relat.	F	F/FB	FB	GdF	B/B+	GdM	MB	Z/Z+	FZ	M	Ch	GdPt-GdCh	Others
712	**183**	**71**	**58**	**106**	**60**	41	39	33	26	24	18	5	48
%	**25.7**	**10**	**8.1**	**14.9**	**8.5**	5.7	5.5	4.6	3.6	3.3	2.5	0.7	6.75

Table II. The semantic distribution of *(T)ATA* ~ *(D)ADA* reflexes.

The total number of relationships covered by the *(T)ATA ~ (D)ADA* reflexes is not as high as in the *(P)APA ~ (B)ABA* series, but remains at a significant statistical level. Here again, their semantic consistency is compelling, as 67% of the relationships covered by the reflexes form a cluster, composed of the father F, the father's brother FB, the grandfather GdF, and the (elder) brother B+. The only other relationships having some statistical significance are the mother's brother MB (5.5%) and the elder sister Z+ (4.6%).

3.4. CONCLUSION

All the results pertaining to the tests of sections 3.1, 3.2, and 3.3 are unambiguous: the phonetic and semantic consistencies of both etyma are compelling, and their geolinguistic distribution is global. What is really striking is that the respective proportions for each of the most significant relationships (F/FB, GdF, B/B+) are fairly similar in both cases: 48%, 13% and 9.7% for *(P)APA* and 43.8%, 14.9% and 8.5% for *(T)ATA.* The same is true for the total figures of the parental class {F, FB, GdF, B+} as a whole: 71% and 67% respectively. And still more striking is the comparison of these proportions with the statistical figures of the *(K)AKA* kin class: MB 42.3%, GdF 13.3%, B+ 16.1%, giving a total for the kin class of 71.7%.

Two new etymological series, consistent at a global level, are consequently confirmed, the origin of which requires an explanation. In our former articles, several possible explanations accounting for the worldwide distribution of nursery kin terms such as chance resemblance, sound symbolism, diffusion and borrowing were addressed and opposed. The readers is referred to sections 3 and 4 of Bancel & Matthey de l'Etang (this volume) dealing with the nature of nursery words, in which other linguistic arguments are developed, which favor their common origin from a Proto-Sapiens language. In the next part of the present study, we will focus on some complementary arguments, illustrated with linguistic examples, which have been recently opposed to the hypothesis of the common origin of nursery kinship terms.

4. CONVERGENCE OR INHERITANCE?

4.1. ARE *(P)APA* AND *(T)ATA* INHERITED – OR DO *"THEY JUST KEEP COMING"*?

Before Jakobson launched his own explanation to the global "convergence" of kinship nursery terms, Murdock had already concluded that languages were universally developing nursery words regardless of their historical relationships: *"As standard parental terms become phonetically and morphologically modified in consequence of the normal process of linguistic change, forms develop which are difficult for very young children to pronounce. Under such circumstances, simpler nursery forms tend to appear – carved, so to speak, out of infant babblings under parental encouragement. From time to time, it is alleged, such nursery words come to replace the traditional words in standard usage"*(1959:1). This idea has been accepted since as an unshakable truth by a vast majority of linguists, and has never been challenged until recently. As the hypothesis of a Proto-Sapiens language is gaining ground, some linguists feel it is time to reactivate it. This is why, not long ago, Larry Trask issued an article on the internet entitled "Where Do the *Mama/Papa* Words Come From?", intended to put a final *"nail in the coffin of the Proto-World conjecture."*

Some of his views certainly represent the most conservative perspective. His core argument is very similar to Murdock's: *"The* papa/mama *words are not fossilized relics of some ancient ancestral language at all. Instead, they are being created all the time. New examples of* papa/mama *words are constantly being invented and passing into use. At first, these new words survive alongside the older ones as informal or intimate versions, but they may take over completely and drive the older words out of the language. This process is self-renewing forever* [...] *This endless re-creation and recycling of* papa/mama *words explains a great deal. It explains why we find these words so often, in so many languages."* In support of his assertions, Trask produces numerous linguistic examples taken from various linguistic stocks. Let's examine some of these examples.

4.1.1. Turkic *ata* and *aba ~ baba*

According to the author, *"the inherited Turkic words for 'mother' and 'father' are* ana *and* ata, *respectively, and these words* [...] *are still the everyday words in most Turkic languages. But in the best-known Turkic language,* [Modern] *Turkish, the word* ata *has now become specialized. It is no longer the everyday word for 'father,' and instead it is an elevated word meaning 'forefather, ancestor.'* [...] *But the* *everyday word for 'father' is now* baba. *This, of course, is another* mama/papa *word, and it used to be the Turkish word for 'daddy,' but now is the ordinary word for 'father,' and 'daddy' must now be expressed by adding a diminutive suffix, producing* babacik [...]. "

Trask aims at proving through this succession of replacements and meaning shifts that nursery words undergo constant and quick replacements through time. But his presentation is partial – in all the senses of the word.

In the first place, as Trask himself says, Proto-Turkic *ata* certainly referred to the father F. For instance, Old Turkic *ata* F, Karakhanid *ata* F, Middle Turkic *ata* F, Azeri *ata* F, Sary-Yughur *ata* F, Tatar *ata* F, Kazakh *ata* F, Nogai *ata* F, Balkar *ata* F, Kumyk *ata* F, Bashkir *ata* F, Khakassian *ada* F, Tuva Tolofar *a'da* F. All these terms are not only the traces of the Proto-Turkic form; they also show that this word did not undergo any phonetic and semantic change at all in most of the Turkic languages through their entire history. Isolating the case of Modern Turkish from other Turkic languages is exactly contrary to the comparative method.

Secondly, is the *"specialization"* of meaning of *ata* in Modern Turkish from 'father' to 'forefather, ancestor' a true change of meaning? In fact, there are many examples of modern Turkic languages where *ata* means either 'ancestor' or 'father' and 'ancestor': Modern Turkish *ata* 'ancestor,' Turkmen *ata* FF, Kirghiz *ata* F, 'ancestor,' Karakalpak *ata* 'ancestor,' Uighur *ata* F, 'ancestor,' Altai *ada* F, 'ancestor.' Consequently, it is highly likely that *ata* originally meant both 'father' and 'ancestor.' The specialization that occurred in Modern Turkish (as well as in Karakalpak) is certainly not a semantic innovation at all.

Thirdly, is the new Turkish word *baba* 'father' really new? In fact, one also finds *baaba* GdF in Turkmen, a language belonging to the same southern branch of Turkic as Turkish, but also *baba* GdF, 'elder' in Uzbek (Schurmann 1962: 200), a language belonging to the eastern branch of Turkic. The first possibility is that *baba* forms are derived by reduplication from the Turkic word *apa* ~ *aba* 'father, ancestor,' attested by Old Turkic (Orkhon) *aba* 'grandfather,' Karakhanid *aba* F, 'ancestor,' 'bear,' Turkish *aba* F, Azeri (dial.) *aba* F, Turkmen (dial.) *aba* F, Salar *aba* F, Sary-Yughur *awa* F, Tatar (dial.) *aba* F, Kirghiz *aba* F, Balkar *appa* ~ *aba* F, Bashkir *apa* F, Khakassian *aba* F, Tuva Tolofar *ava* F, Altai *aba* F, 'bear,' Chuvash *aba* 'bear.' Moreover, Turkic is one of the three branches of the Altaic family, together with Mongolic and Tungusic, where the root *apa* ~ *aba* 'father, ancestor' is abundantly attested sometimes even with the meaning of mother.M, mother's sister MZ and elder sister Z+ (see Appendix A).

The second hypothesis is that the Turkish, Turkmen, and Uzbek *baba* forms were borrowed from the neighboring Iranian languages (such as Farsi, Pashto, Tajik). Iranian languages are derived from Indo-European, where the root *papa* ~ *baba* F is also present in the Anatolian and Indic branches, and exists in Italic and Greek with the meaning of 'grandfather'. The fact that Turkish also uses another term *peder* 'father', from Iranian origin, gives substance to this hypothesis. Of course, these two hypotheses are not contradictory. If, as it is probable, Turkish-speaking invaders had an *apa* ~ *aba* form in their language, it would have been only easier for them to adopt a *baba* form from Indo-Iranian speakers in the newly conquerred regions.

Whether borrowed from Iranian or derived from Proto-Altaic (or both), Turkish *baba* 'father' is certainly not a newly created word.

4.1.2. Welsh *tad*

Trask claims that, in Welsh, the term inherited from Proto-Indo-European *pater* 'father' F (attested in other Celtic languages such as Gaulish *atér* 'father' F or Old Irish *athair* 'father' F) disappeared and was replaced by a *"new word" tad* F. This statement is not true, either.

In the first place, the Welsh term *tad* F is anything but new in the Brythonic branch of Celtic. It is found in XIII^th^ century Old Welsh *tad* F (Charles-Edwards 1993), in Middle Briton *tad* F (XII^th^-XVII^th^ century) and also in Old Cornish *tat* F (*Vocabularium Cornicum, ca.* 1150). According to Charles-Edwards (1993: 169), this word must *"go back at least to the Romano-British period."*

In fact, *tad* F must have belonged to the common Brythonic lexicon, and even to the Insular Celtic lexicon (comprising the Brythonic and Goidelic branches). The first reason is that the Old Irish (a Goidelic language) word *dait* ~ *data* 'foster father' (still in use in Modern Irish) is evidently related to Brythonic *tad* ~ *tat* F. The second reason is that neither Middle Briton nor Old Irish may have borrowed the word *dad* from English, a language with which they never were in close contact. On the contrary, the

English word *dad,* an isolated form within the Germanic group, is likely to have been borrowed from Brythonic at the time of the Anglo-Saxon invasion.

Secondly, the Old Welsh derivative *edrydd* ~ *edryf* 'paternal kin' is, according to Charles-Edwards (1993: 200), parallel to Old Irish *aithre,* and derives from Proto-Celtic *atrio* 'paternal kin', itself cognate with Latin *patrius* 'paternal kin.' This form clearly shows that the Indo-European root *pater* 'father' did not completely disappear from Welsh, either.

4.1.3. Rumanian *tata,* French *papa* and Greek *babbas*

Among the nursery kin terms which Trask believes are of recent origin, there are also the Rumanian, French and Greek terms for 'dad', *tata, papa,* and *babbas,* respectively.

Trask asserts that, in Rumanian, the recent word *tata* F eventually replaced the original term for 'father' inherited from Latin. The recent origin of this nursery form in Rumanian is certainly questionable. One cannot exclude its inheritance from the Latin address term *tata* 'dad'! Rumanian would be then and, to our knowledge, the only Romance language having inherited *tata* from Latin. Another possibility, of course, is that Rumanian *tata* was borrowed from the neighboring Slavic languages.

Now let us consider French *papa,* which Trask believes is newer than the "formal" term *père.* It is hard to believe that the author ignores that *papa* is inherited from Latin *pappa* (irregular vocative of *pappas*), just like *père* is inherited from *pater.*

It is hard to believe, but it it happens again with the Modern Greek *babbas* 'daddy', which Trask pretends *"cannot be ancient in Greek,"* contrary to *pateras* 'father' F, *"because the consonant /b/ of classical Greek changed in everycase into /v/ in the postclassical period. For example, Classical Greek had the word* biblios *'book'* [...] *But the Modern Greek form of the word is* vivlio, *with the earlier /b/s changed into /v/s."* This linguistic argument is absolutely irrelevant in the particular example of the modern *babbas* 'dad.' This Modern Greek word finds a very similar, well attested counterpart in Classical Greek *pappas* 'dad' (vocative *pappa*), which certainly must be considered as a very good candidate for ancestry of Modern Greek *babbas* 'dad.'

Once again, these three examples are not supporting Trask's thesis, quite to the contrary. And there is more to come.

4.1.4. Bengali and Hindi *baba*

Trask takes another example from Bengali and Hindi. In these Indic languages, the *"formal word" pita* F, inherited from Proto-Indo-European *pater* 'father,' now coexists with the *"informal" baba* or *bap.* Trask implicitly suggests that Bengali and Hindi independently created the nursery forms *baba* ~ *bap,* and that the opposition between *pita* F and *baba* is recent in these languages. How could Trask miss the fact that this opposition already existed in Sanskrit, from which Bengali and Hindi obviously inherited both *baba* and *pita*? As we mentioned in section 3.1.1, *baba* was not an innovation in Sanskrit, either, but belongs to the common Indo-European vocabulary, together with *pater* F and *at(t)a* F.

4.1.5. Dravidian *appa*

The last of Trask's examples that we will consider is the Tamil *"formal word" takappan* F, opposed to the *"informal"* term *appaa* F. According to Trask, informal *appaa* is just another case of innovation. A closer look at the sister Dravidian languages of Tamil should have made the author a little more cautious.

Eleven Dravidian languages for which we have accurate data do display *appa* words for 'father.' The use that each of these languages makes of the term varies. Trautmann (1981) does not give additional terms for father F in Tulu, Kodagu, Malayalam, Kui, and Konda, so we can infer that, in these languages, *appa* forms are used for both address and reference, or that no distinction is made between formal and informal usages. Similarly, the Konku (a Tamil-speaking group) use *appa* for both address and reference (Beck 1972: 287). In Kannada, *appa* is a vocative (address) term, while *thande* is a denotative (reference) term (Srinivas 1942: 204-205). In Telugu, Starostin (2003) gives three terms for 'father': *appa, aya* and *tandri,* but doesn't give details about the way they are used. In Kurukh, *abba* is the reference term and *bā* the address term (Emeneau 1955: 184). For Brahui, the same author reports that *abba* is a *"respectful address term."* Finally, in Hill Maria Gondi, *tappe* is a referential term (Grigson 1949: 309).

The near phonetic identity of these Dravidian words clearly shows that Tamil *appaa* is not a recent innovation. On the contrary, specialists of Dravidian reconstruct **ap* ~ **appa* 'father.' Moreover, Tamil *"formal" takappan* F was obviously formed on *appaa* F. Once again, one of Trask's alleged new words proves to be very old.

Dravidian data also raise the issue of the opposition between referential and address terms. Data show that, depending on language, *appa* words may be either address or reference terms, or both. This variation suggests that the usage of kin terms cannot be reduced to a simple opposition between "informal" nursery words used for address, and more "formal" inherited terms for reference, as Trask seems to believe. Dravidian is not the only stock displaying this situation. A cautious examination of data has convinced us that there is a good amount of languages in Niger-Congo, Afroasiatic, Indo-Pacific and elsewhere which do not show the reference and address dichotomy in kin terms, and for which there is no other term for father F but the "canonical" *apa* ~ *papa*, *ata* ~ *tata* forms.

4.1.6. Conclusion: the age of nursery kin terms

After close scrutiny, all of the "innovations" revealed by Trask proved simply erroneous. All of them had been merely abstracted from their comparative and historical context. Once they are replaced in perspective with data from closely related languages, they immediately appear as obvious cognates – both phonetically and semantically – of words from sister languages, that must have been used through millennia with the same meaning. The Turkish word *ata* has not varied a bit since the time of the Orkhon inscriptions; nor has Welsh *tad* since the Romano-British period, nor Bengali *baba*, etc.

Tables III and IV contain the examples discussed above with other evidence taken from ancient written languages and modern languages derived from them, clearly illustrating the amazing resistance – both phonetical and semantical – of the nursery kin terms to linguistic change. This evidence certainly gives a blow to the theory of "innovations."

Table III. ***(T)ATA*** **forms in ancient languages reflected in modern related languages.**

Language	Archaic terms	Derived terms	Minimal time span
Classical Latin	*tata* F	Possibly Rumanian *tata* F	2,500 years
Sanskrit	*tāta* F	Pali *tāta* F, Kol *dādā* F	3,000 years
Avestan	*tā* F	Besud *atá* F, Jaghuri *atai* F	3,000 years
Brythonic	*tad* F	Briton, Welsh *tad* F, Cornish *tat* F	2,000 years
Uighur	*ata* F	Azeri *ata* F, Sary-Yughur *ata* F, etc.	1,300 years

Table IV . ***(B)ABA*** **forms in ancient languages reflected in modern related languages.**

Language	Archaic terms	Derived terms	Minimal time span
Classical Latin	*pappa* F	French *papa* F, Italian *papa* 'pope'	2,500 years
Homeric Greek	*pappas* F	Modern Greek *babbas* F	2,900 years
Sanskrit	*bābā* F	Bengali *bābā* F	3,000 years
Orkhon, Uighur	*apa* ancestor, GdF	Karakhanid *aba* F, 'ancestor'	1,300 years
Akkadian	*abu* F	Modern Arabic *ʔab* F	4,500 years
Written Mongolian	*aba* F	Monguor *aba*	800 years
Middle Korean	*àpí* F	Modern Korean *appa* F	1,000 years
Archaic Chinese	*ba* F	Modern Mandarin *baba* F	4,.500 years

Before we close this section, we will take a final and conclusive example, well documented historically. This example is the Semitic word *ʔab* F, the attested existence of which dates to some 4,400 years ago. We find *abu* F in Akkadian and *abbu* 'elder' in Eblaic (4,400 BP). In Babylonian, we have *abu* F, in Hebrew *ʔaab* F, in Aramaic *ʔabbaa* F, in Ugaritic *ʔab* F, in Phoenician *ʔb* F, in Epigraphic South Arabic (VIIth century AD) *ʔb* F, etc. Cognates from the modern period are found in Tigre *ʔab* F, Amharic *abbat* F, East Ethiopic *aabu* F, Ge'ez *ʔab* F, Gurage *ab* F, Modern Arabic *ʔab* F, etc.

Each of these cognates accounts for the extraordinary degree of phonetic preservation of this term since the time of Ebla. To our knowledge, nobody ever ventured to explain them in terms of convergence, or in terms of permanent recreation. To the contrary, there is a wide agreement that these similar terms for 'father' are all reflexes of the Proto-Semitic term *ʔab-* F (Starostin 2004)[2].

TableV display supplementary reflexes of *(B)ABA* and *(T)ATA* which existed in ancient languages.

4.2. THE MOTHER'S CHOICE

Another idea developped through Trask's article is that the mother (each and every mother individually!) is primarily responsible to *"assign"* the baby's babbling sequences to the family members. First, she usually makes the baby associate the easiest sounds sequences of the type *ma-ma* to herself, then she makes the nursling associate babbling sequences of the type *pa-pa* or *ta-ta* indifferently with the father F. Consequently, all the variations that are observed in the forms assigned to each parent, *nana* instead of *mama* for mother M, or *mama* instead of *papa* for father F, have to be naturally attributed to choices made by individual mothers.

After this first stage, more complicated babbling sequences like the ones that combine velar consonants [g, k] and vowel [a] are assigned, as soon as they can be mastered, to other family members such as uncles, aunts, brothers, sisters, and grandparents. Trask observes that, due to the growing phonetic abilities of the child, variations in the babbling assignments are even more frequent than during the first babbling stages. In the *"closely related* [Turkic] *languages,"* there seems to be a *"great variation in the choices made." "Kyrgyz has* aga *for 'older brother', and Uyghur and Uzbek have* aka *for the same meaning. In Tatar and Turkmen, however,* aga *means 'uncle,' and quite different words are used for 'older brother'."*

However, examination of the data at a global level shows that such variation is not erratic. As Ruhlen (2000*a*) precisely demonstrated, with regards to the etymon *(K)AKA*, this particular alternance of the elder brother B+ and uncle meanings is not specific to the Turkic languages but regularly appears throughout the world's languages. Moreover, our own studies on *(K)AKA* (Bancel & Matthey de l'Etang, Matthey de l'Etang & Bancel 2002), based on some 500 cognates, showed that this kinship nursery term is clearly primarily associated with the mother's brother MB (49.8% of cognates), secondarily with the elder brother B+ (19%), with the grandfather GdF (15.6%), and sporadically with the paternal uncle FB (10.9%), but never with the father F (0.4%). So there is certainly nothing like random in the way speakers of Turkic languages "assign" *AKA* to 'elder brother' and 'uncle.'

---

[2] Other very similar Afroasiatic roots have been reconstructed: Proto-Southern-Cushitic *aba* F (Ehret 1980), Proto-Eastern-Cushitic *aabba* ~ *baabó* F (Blažek 2002), Proto-Central Cushitic *ʔab* F (Starostin 2003), Proto-Eastern Cushitic *ʔab* F (Starostin 2003), Proto-Berber *V-bb-* F (Blažek 2002), Proto-Western Chadic *ʔub-* ~ *ʔab-* F (Starostin 2003), Proto-Central Chadic *ʔab* F (Starostin 2003), Proto-Eastern Chadic *ʔab* 'man' (Starostin 2003), without forgetting Ongota *ʔabba* F, which some linguists believe is an independent Afroasiatic branch. All these roots are clear reflexes of Proto-Afroasiatic *ʔab-* F.

It worth also mentioning that Dolgopolsky (1998, quoted in Hage 2003) reconstructed *ʔaba* or *aba* father F for Proto-Nostratic. Let us recall that the Nostratic megaphylum, as Dolgopolsky defines it, includes Indo-European, Afroasiatic, Kartvelian, Uralic, Altaic, and Dravidian. Greenberg (2001), for his part, proposed *ap(p)a* as one of the forms meaning 'father' F in Proto-Eurasiatic. Eurasiatic, under Greenberg's definition, is composed of Indo-European, Etruscan, Altaic, Eskimo-Aleut, Uralic-Yukaghir, Gilyak, and Chukchi-Kamchadal.

Many parallel reconstructions have been proposed for other linguistic stocks: Proto-North Caucasian **aba* F (Starostin 2003), Proto-Bantu **baba* F (Meeussen 1969), Proto-Tibeto-Burman *apha* ~ **ba* F (Benedict 1941), etc. The same applies to *ata* forms, for which we also have extensive ethnolinguistic data and reconstructions: Proto-Austric *(ta) ta* GdF (Hayes 2003), Proto-Siouan *atí* ~ *tatí* F, FB (Matthews 1959), Proto-Bantu *-tààtá* F (Guthrie 1970), Proto-Indic *tât'a* F (Strand 2003), Proto-Athabaskan *taʔ* F (Hoijer 1956), etc.

Table V. *(B)ABA* and *(T)ATA* in ancient written languages and early records.

LANGUAGES	*(B)ABA* FORMS	*(T)ATA* FORMS
Semitic		
Eblaic 4400 BP	*abbu* elders	
Akkadian 4400 BP	*abu* F	
Babylonian 4000 BP	*abu* F	
Ugaritic 4000 BP	*ʔab* F	*ád* F
Hebrew 3000 BP	*ʔab* F	
Arabic *ca.* 1400 BP	*ab* F	
Aramaic 2500 BP	*ʔab* F	
Indo-Hittite		
Hatti 4000 BP?		*da* F
Hittite 3500 BP		*attaš* F
Luwian 3500 BP		*tati* F
Palaic 3500 BP	*papa* F	
Lycian 2500 BP		*tedi* F
Greek 3000 BP	*pa[ter]* F, *páppas* dad, *pappos* GdF	*atta* F
Latin 2500 BP	*pa[ter]* F, *pappa* dad	*tata* dad
Oscan 2500 BP	*pa[tír]* F	
Gotic 1500 BP	*fa[dar]* F	*atta* F
Gaulish 2000 BP	*a[ter]* F	
Old Irish 1200 BP	*a[thir]* F	*dait*~*data* foster father
Old Welsh 800 BP	*edrydd* paternal kin	*tad* F
Old Cornish 900 BP		*tad* F
Middle Briton 800 BP		*tat* F
Sanskrit 3000 BP	*pi[tar], baba* F	*tata* F
Avestan 3000 BP	*pi[tar]* F	*tā* F
Old Persian 2500 BP	*pi[tar]* F	
Scythian 2500 BP		*da, iti?* F
Tocharian A and B 1500 BP	*pá[car]* ~ *appakke* F	
Uralic-Yukaghir		
Koryak 1774	*appa* F	*atta* FB
Korean		
Middle Korean	*àpí* F	
Elamo-Dravidian		
Elamite 4000 BP		*atta* F
Amerind		
Tarascan *ca.* 1559 AD		*tata* F, FB
Taino before 1500 AD	*baba* F	
Other languages		
Etruscan 2500 BP	*apa* F	
Hurrian 4000 BP		*ate* F
Mittani 3500 BP		*attai* F
Sumerian 4500 BP	*abba* F, elder, ancestor	*adda* F
Mede 2600 BP		*atu* F

Now, how can we account for this recurrent pattern? It seems to us that there are only two solutions. Either, for some obscure reasons, every language – putting aside the famous *mama*-mother association – spontaneously associates sound sequences combining consonants [p, t] and the vowel [a] with the paternal figure, while it spontaneously associates sound sequences combining velar consonant [g, k] and the vowel [a] with the maternal uncle and the elder brother, or every language inherited these nursery words from some ancestral language. Jakobson (1960: 129) certainly felt inclined towards the first solution, as he suggested complementary studies to determine to which degree the naming of the different familial relationships corresponded to the different stages of language acquisition. Ruhlen (2000*a*: 530) soundly remarked that this idea of spontaneous associations between relatives in the order in which they "appear on the scene" with the child phonological development was artificial, and it did not seem to him *"plausible that human society could be organized so neatly."*

We believe that this conception is not only unlikely but simply false, and here is the reason why. Let us admit for a minute that languages really associate their closest relatives by order of their importance and appearance in the child emotional environment to babbling sequences in the order of their phonetic complexity: first, mother M with *ma-ma* sequences, then father F with *pa-pa* or *ta-ta* sequences, then mother's brother MB with *ka-ka* sequences. How, then, could we find also *pa-pa* and *ta-ta* sequences associated with the paternal uncle FB? The father's brother FB, either specifically or in association with the father F, is the second most frequent relationship to which *(P)APA* and *(T)ATA* reflexes refer (20% of the *(p)apa ~ (b)aba* cognates, and 18.1% of the *(t)ata ~ (d)ada* cognates). Do the father's brother appear earlier than the mother's brothers in the child's environment? Certainly not. With regard to the father's and mother's brothers, the theory of sequential semantic assignments does not work.

4.5. CONCLUSION

We have been discussing two arguments presented by Larry Trask based on linguistic examples. None of them, as we have demonstrated, resists examination. On the one hand, the nursery kinship terms, that he believes are innovations in Turkic, Brythonic, Indic, French, Rumanian, Greek, and Dravidian, clearly derive from the lexicon of their respective proto-languages, as the immense majority of kinship nursery terms certainly do. On the other hand, a large scale comparison clearly shows that random has nothing to do with the distribution of nursery kinship terms. Factors other than maternal choices are behind the nursery terms various meanings. These factors, as our previous and present studies reveal, are to be sought in the way that the Proto-Sapiens society organized kinship. To these factors will be dedicated the next section, starting with the meaning of our etyma *(P)APA* and *(T)ATA)*.

5. THE ORIGINAL MEANING OF *(P)APA* AND *(T)ATA*

5.1. THE MEANING OF *(P)APA*

We will address the meanings of *(P)APA* that are statistically representative, in the decreasing order, looking for their distribution through the linguistic family spectrum.

5.1.1. The father F and the father's brother FB relationships (48%)

This meaning is present in all the linguistic macrofamilies and in numerous families of inferior level, with the sense of 'father' F and/or 'father's brother' FB. It is no wonder, as most classificatory kinship systems have just one term for both relationships.

The occurrences of these two relationships, taken together, cover 48% of our sample. Reflexes referring to these relationships in ancient written languages or early ethnological data are gathered in Table V. The general comparative list (Appendix A) also presents most of the linguistic reconstructions proposed so far with this meaning, particularly with the *aba ~ apa* forms: Proto-Dravidian, Proto-Semitic, Proto-Cushitic, Proto-Omotic, Proto-Mongolic, Proto-Turkic, Proto-Caucasian, Proto-Munda, Proto-Sino-Tibetan, etc. The word is also found in numerous families where another proto-form for 'father' F is reconstructed, as in Proto-Eskimo **ata* F (but Nunamiut *apa* F), Proto-Na-Dene **ʔta* F (but Carrier *apa* F), Proto-Austric **[t]ama* F (but Vietnamese *ba* F, Tausung *apa* F, Malay *bapa* F, East Keo *bapa* F, Baduj *bapa* F, Tuamotu *paapaa* F, etc.). We have no doubt that these two positions are originally linked and constitute the 'focal'[3] relationships (Lounsbury 1964) to which this term referred.

---

[3] Lounsbury (1964: 346, 361) uses this expression to refer to a kin type (often a relationship close to ego) to which more remote kin types can be "reduced" by applying "transformation" or "equivalence" rules pertaining to the particular system in which this kin type is found. For example, in the omaha-type system of the Fox (North America), the mother's mother's father's son's son's MMFSS can be reduced to a mother's brother MB.

5.1.2. The grandfather GdF relationship (13%)

Distinguishing the maternal from the paternal grandfather (FF, MF) in our sample is not feasible, as a lot of terms refers to both of them, if not to all grandparents GdPt and sometimes even to grandparents and grandchildren GdPt-GdCh. This is why we deliberately termed grandfather GdF every relationship referring either to the paternal or the maternal side or both. At the same time, we maintained the grandparent-grandchildren class as a separate relationship. The result is that we certainly underestimated the number of grandfather GdF relationships covered by the reflexes. The grandfather GdF ratio is however very significant: 13%.

5.1.3. The elder brother/brother B+/B relationship (9.7%)

The root is present with this precise meaning in a majority of linguistic macrofamilies. If we include the different categories of brother B, this category's percentage goes up to 9.7 % of the sample. Miller (1967) reconstructed Proto-Uto-Aztecan *pa* 'elder brother' B+ (see Appendix A). Greenberg (1987) published a lot of reflexes of *(P)APA* with the same meaning in numerous languages, notably in Chibchan-Paezan, Central Amerind, Hokan, Penutian, etc., which are not included into our statistical account. In Australian, reflexes of *(P)APA* have been collected in 25 out of 93 languages (both Paman and non-Paman), notably reduplicated terms like *baba* (see Appendix A).

5.1.4. The grandmother GdM relationship (4.7%)

The number of occurrences for this relationship is not negligible (49 = 4.7%) but, as it is not globally distributed, and is frequently subsumed under the 'grandparent' GdPt relationship, we will not assume that it was originally referred to by *(P)APA*.

5.1.5. Self-reciprocal grandparents-grandchildren GdPt/GdCh relationship (4%)

Some scholars believe that the existence of terms like those addressing both the grandparents and the grandchildren GdPt-GdCh are possible remnants of a type of kinship terminology that was original to most languages of the world (Allen 1998). The number of occurrences of these reciprocal relationships is substantial (4%), but as most of them are found in a limited number of language families (Oceanic, Uto-Aztecan, and Niger-Congo), we will not make, at this time, any general inference.

5.1.6. The grandchildren GdCh relationship (3.7%)

The significant presence of many reflexes referring to this relationship (3.7%) has perhaps something to do with the occurrences of the reflexes covering the grandparent level and the combined grandparent-grandchild level, with possible implications in terms of system types. This question needs to be addressed separately.

5.1.7. The father's sister FZ relationship (3.5%)

This relationship is not accepted as part of the original meaning, since its geolinguistic distribution is weak.

5.1.8. The mother's brother MB (3.2%) and the mother M relationships (1.9%)

Percentages of occurrences of these relationships are low. Moreover, most of them are found in a small number of linguistic families: Cushitic, Burmic, and Indo-Pacific. So we will not consider these relationships as originally covered by the etymon.

5.1.9. The sister Z relationship (2.6%)

As this relationship is not very representative and is far from being widely distributed geographically, we will not consider that it was originally referred to by *(P)APA*.

5.1.10. The mother's sister's husband MZH relationship

This relationship is not expressed in our statistical table, as it is almost always mentioned as a secondary position: *(P)APA* terms that clearly designate both the father F and the mother's sister's husband MZH are fairly numerous in our sample, and a lot of them even refer to three kinship relationships at the same time, the father F, the father's brother FB, and the mother's sister's husband MZH (see Appendix A). Mother's sister's husband is certainly part of the classificatory meaning of *(P)APA*.

5.2. THE MEANING OF *(P)APA*: CONCLUSION

The relationships that we will ultimately retain are those that are statistically significant and distributed through a large number of linguistic stocks. The father F, the father's brother FB, the grandfather GdF, the elder brother B+. This group of relationships {F, FB, GdF, B+} displays a consistent semantic pattern as it includes all masculine elders, the mother's brother MB being excluded. What is most remarkable is that this pattern is highly consistent with the semantic *(K)AKA* pattern [MB, GdF, B+]. The mutual exclusion of the mother's brother MB from the series *(P)APA*, and of the father's brother FB from the *(K)AKA* series, must be significant in terms of kinship system types, as we will see in section 6. We will posit that {F, FB, GdF, B+} were the relationships addressed by the etymon *(P)APA* in the Proto-Sapiens language.

Of course, such a classificatory semantic pattern will not astonish kinship anthropologists familiar with terms that cut across generations, like the ones that are in use in crow and omaha kinship systems. We already addressed some of the similarities that these systems have with the semantic pattern of *(K)AKA* (Matthey de l'Etang & Bancel 2002). Systems which equate the male members of the father's clan to the father are crow systems (Lounsbury 1964, 371 *sqq.*). But crow classificatory patterns include all generations. Our own study revealed many examples of societies referring to the members of the patriclan as ***aba*** or ***baba***. In Tsimshian, ***āb*** said by a woman refers to the male members of the father's clan (Boas, quoted in Mayer-Durlach 1928: 143). In Teda, ***aba*** means 'father' F and 'elder;' in Pashto, ***aba*** means 'father' F and 'elder;' in Zande, ***buba*** refers to a 'male member of the father's clan in the generation of the father F;' in Baule, ***baba*** refers to an 'elder.' Most interestingly, in Sumerian, ***abba*** refers to 'father' F, 'grand-father' GdF, and the 'ancestors' (Halloran 1999).

5.3. THE MEANING OF *(T)ATA*

The observations made about the series *(P)APA* also apply, with some variations, to the series *(T)ATA* (Table II). The substantial contribution of reflexes referring to the mother's brother MB (5,5%) to this series is certainly due to their highly significant presence in Uto-Aztecan and in some Oceanic languages, notably from New Ireland[4]. Another noticeable difference with the series *(P)APA* is the quasi-absence of reflexes reciprocally referring to the grandparents and the grandchildren GdPt-GdCh. The most ancient reflexes of *(T)ATA* attested in written languages have been collected in Table III.

Here again, we will tentatively propose to retain the father F, the father's brother FB, the grandfather GdF and the elder brother B+, as the relationships covered by *(T)ATA* in the Proto-Sapiens language, in other words a class of kin including ego's masculine elders, the mother's brother MB excluded {B+, F, FB, GdF}. Close modern and ancient examples of this kinship semantic pattern are found notably in Navajo *tà·ʔ* 'father' F, 'males of the father's clan' (Hoijer 1956: 325), Altai and Uighur ***ata*** 'father' F, 'ancestor,' Bole ***daadá*** 'senior,' Sanskrit ***dādda*** 'elder paternal kinsman,'etc.

5.4. WHY TWO ETYMA?

The existence of two global etyma addressing the same class of relationships raises two questions. The first is whether the two words coexisted in the original Proto-Sapiens language. The second is, assuming that the answer to the first is positive, what could have been the semantic relationship between them in this original language? To answer these questions, we must consider how these roots are or were distributed and used in languages for which we obtained data (ancient languages for which documentation is accessible as well as various kinship nomenclatures and lexicons).

5.4.1. Did *(T)ATA* and *(P)APA* coexist in the Proto-Sapiens language?

---

[4] Uto-Aztecan apparently uses two variations of the canonical form *(T)ATA* to refer to both 'mother's brother' MB and 'father' F. Miller (1967: 65) notably reconstucted *tata* or *ta* 'father' F, while Shimkin (1941: 225) proposed *tati* 'mother's brother' MB.

We think they did. There are two good reasons for it: the first is their common global geolinguistic extension; the second is that many languages do include both of them in their kinship terminology.

As we just pointed out in section 3.2 (geographical validity of the etyma), both *(P)APA* and *(T)ATA* are widely distributed with an equal semantic consistency. There is almost no linguistic family, displaying only one of the two roots.

In most language families, both roots are apparently randomly distributed with regard to one another. In Burmic, Lisu has *ipa* F, while Nasupo has *ade* F; in Paren Koryak, we find *apa* F, in Kamenskoye Koryak we find *tata* F (but *apȧ* GdF); in Berber, Siwa has *abba* F, Nefusi has *dada* F; in Cushitic, Afar has *abba* F, Zaysse has *ada* F; in Chadic, Gidar has *ḁ́bbḁ* F, Sha has *ʔadá* F, etc. In some families, one root is overwhelmingly represented. It is well known that most Eskimo terms for father are reflexes of *(T)ATA*, but Nunamiut has *apa* F, and North Alaskan Inuit has *aapa* F. The same happens in Athapaskan, where most of the terms for father F are also reflexes of *(T)ATA*, but Sekani has *abba* 'my father' and Carrier *a'pa* 'my father'. Conversely, most Semitic terms for 'father' are reflexes of *(B)ABA*, like Arabic *ʔab-* F, but Ugaritic also used *ád* F (Blažek 2002: 111).

In Africa, the situation is very contrasted. Khoisan languages predominantly display *(B)ABA* F forms. In Niger-Congo, while West Atlantic and North Central Niger-Congo predominantly display *(B)ABA* forms (*e.g.* in Gbaya, Banda and Zande), the Bantu phylum offers the most intricate situation. The CBOLD[5] database produces online maps taken from Guthrie's data, showing how these two roots are distributed in the Bantu zones delineated by Guthrie. There are regions where apparently *(B)ABA* cognates are predominant (the Northwest), and others (the West) where *(T)ATA* cognates are predominant. Finally, in other regions, most notably the Southwest, both roots are present. Our own data clearly illustrate this latter configuration for the southern zone. Tonga, Lozi, Tswana, Luvale, Mbundu, Wakwandu, Ngonde have *tata* F, while Tswa, Ndebele, Venda, Zezuru, Swazi have *baba* F. Guthrie (1970, vol. 4, C.S. 1686-1687) reconstructed Proto-Bantu *-tààta* father F, while expressing some doubts about *-baaba* F (1970, vol. 3, C.S. 7) because it is a nursery form. For his part, Meeussen (1969)[6] reconstructed both roots, and posited a substantial semantic difference between them. He stated that *-baba* referred to the father F and the grandfather GdF, while *-tààta* meant 'my father.' More recent reconstructions, dating from 1998, are also accessible online[7]. They display the same roots with the same glosses.

Both words coexist in the same kinship nomenclature of many languages. They may refer to different relationships, sometimes very close (Table VI), or they may refer to the same meaning, as if they were synonyms; Table VII lists some examples[8] of terms meaning father F or grandfather GdF.

5.4.2. The original usages of *(T)ATA* and *(P)APA*

How can we explain, then, that two roots with the same meaning may have existed in the Proto-Sapiens language? A possibility is that there were specific usages attached to each of them. The fact that one language may possess more than one term to designate a kin relation is well known. Linguists and anthropologists generally distinguish between what they call address terms (appellatives), *i.e.* terms that are most commonly used by people since their early chilhood to address their closest relatives, like *Daddy* in *"Daddy, where are you?"* and the reference terms, that are used to refer to someone who is not necessary present and not necessary ego's own relative, like *father* in *"John's father is tall."*

Unfortunately, the ways languages perform the appellative and referential functions cannot be illustrated on a large scale, because appropriate information is not systematically provided in the ethnological data. Consequently, our discussion will be reduced in the present study to a brief outline of the status of "nursery" kin terms with regard to reference and address. As we already noticed, *papa* and *tata*, commonly regarded as "baby talk" as they are, have been almost systematically assigned to the appellative category. If this is really the case, we would then have two appellative etyma in Proto-Sapiens, which seems very unlikely. It is even another argument raised by Trask (s.d.) to discard the etymological value of the *(T)ATA* and *(P)APA* words.

---

[5] Comparative Bantu OnLine Dictionary: <http://www.cbold.ddl.ish-lyon.cnrs.fr/>.

[6] We accessed Meeussen's Bantu lexical reconstructions (1969) by the CBOLD database, where they are labelled as BLR1.

[7] These recent reconstructions are termed BLR2 on the CBOLD site.

[8] Terms are given with specification of the way they are used (address or reference) whenever this information is available.

Table VI. Languages displaying *(P)APA* and *(T)ATA* referring to different meanings.

Shasta *apo* B+, *ata* F	Gusii *baabá* my M, *taatá* my F
Atsugewi *apun* FF, *pupa* B+, *tata* F	Shilha *bääba* F, *adda* ~ *dada* uncle
Plains Miwok *appa* F, *papa* GdF, *tata* FB	Zenaga *baba* F, *ĭəddə*^{h} GdF
Lake Miwok *api* F, *papa* GdF, *ata* B+, *tata* FB–	Kabyle *baaba* F, *dadda* B, FB
Coast Miwok *api* F, *papa* GdF, *ata* B+, *tata* FB–	Somali *aabbee* (ref. & ad.) F, *adeer* (ref. & ad.) FB
Mixe (Quintana) *ap* GdF, *apunk* GdCh, *teit* F	Old Turkic *aba* ancestor, *ata* F
Mixe (Totontepec) *ap* GdF, GdCh, *tata* F	Kirghiz *aba* F, *ata* F, ancestor
Tequislastec *papá* (ad.) F, GdF, *tatawélo* GdF	Byangsi *ba* F, *tata* Z+
Tarascan (mid XVIth cent.) *tata* F, FB, *papa* MB	Nunamiut Eskimo *apa* F, *atata* GdF
Mayoruna *papa* F, *dada* distant brother (ego m.)	Kangiarnem Eskimo *a.paŋ* F, *tata* GdF
South Munda *apu* F, *tata* FF, MF	Hindi *baap* F, *taatii* FB
North Munda *ba* F, *tata* FF, MF	Punjabi *daaddaa* FF, *babbaa* F
Santali *apun* F, *dada* B+	Kolami *appa* FZ, *daadaa* B+
Kukukuku (Manki) *apo* F, *ato* FB	Tamil *appaa* F, *tattaa* FF
Kikuyu *βaaβa* ~ *baba* (ad.) F, *tata* FZ, MZ	Yinwum *tata* F, *iβe* FB–
Kuria *baabá* M, *tata* F	

Table VII. Languages displaying *(P)APA* and *(T)ATA* referring to the same meaning.

Sekani *abba* my F, *ta* F	Northern Wintun (Shasta Cty) *hapa* (ref.), *tata* (ad.) F
Carrier *a'pa* my F, *tai* F	Ojibwa *nin baba*, *nin dede* my F
Tsetsaut *ə-ba* FB, *ta* F, FB	Popoluca *ʔapanaa*, *tʔanaa* F
Tibetan *p*^{h}*a* F, *ta* (ad.) F	Cuna *pap*, *tata* F
Balti *ba-wa* (respectful) F, *a-ta* F	Vietnamese *ba*, *thay* F
Lak *p:u* F, *tātā* (endearment) F	Ugaritic *ʔab*, *ád* F
Lolo *a-bu* F (adult use), *a-ta* (child use) F	Tamashek *abba*, *adda* F
Baka *dāà*, *bàbā* F	Awlemidden *aba*, *adda* my F
Thonga *baba*, WB+ *tatana* (ad.) F	Wargli *baba* F, *dadda* (ad.) F
Xhosa *ubawo*, *utata* my F	Ayr *abba*, *adda* my F
Nama *ĩp* (ad.), *abob* (rare) F, *tatab* my F	Dac'e *aawa*, *ade* F
Bashkir *apa* F (dial.), *ata* F	Sumerian *abba* F, GdF, ancestor, *adda* F
Tuva-Tolofar *ava*, *a'da* F	Avestan *pitar*, *tā* F
Kirghiz *aba*, *ata* F	Sanskrit *baba* (ad.) F, *tata* (ref.) F
Balkar *aba*, *ata* F	Rajastani *baabaa*, *daadaa* FF
Khakassian *aba*, *ada* F	Hindi *baabaa*, *daadaa* FF
Monguor *aba*, *ata* F	Classical Greek *pater* (ref.), *atta* (ad.) F
Besud *bɔbai* (ad. & ref.?) F, *ɔtai* (ad. & ref.?) F	Latin *pater* (ref.), *papa* (ad.), *tata* (ad.) F
Telugu *appa*, *tāta* F	Gotic *fadar* (ref.), *atta* (ad.) F
Tamil *appā*, *attan* F	English *father* (ref.), *dad* (ad.) F

Ethnological reports do not always distinguish between address and reference. However, those which make this distinction do not support the view that *(T)ATA* and *(P)APA* forms should always be appellatives. To the contrary, their data highlight the great diversity of usages attached to them.

Reflexes of *(T)ATA* are diversely used to express:

1. Direct address: Briton *(ma)zad* 'dad,' English *dad*, Wargli *dadda* 'dad,' Akar Bale *da* 'dad,' 'elder,' Ila *ta* 'dad,' but *tata* 'my F', Yakö *tata* 'dad,' Pedi *tata* 'dad,' but *tate* 'my F', Yakö *tata* 'dad,' Tibetan *ata* 'dad,' Balti *ata* 'dad,' Latin *tata* 'dad,' Eyak *aɒa* 'dad,' Anvik *ə-ta* 'dad,' etc.
2. Reference: Briton *tad* F, Santali *dada* F, Agta *dada* aunt, Tibetan (dial.) *ata* F, Kal'Asa *d'ada* F, FB, Khow *tat* F, Vä *tâta* F, and apparently most of the Athapaskan *(T)ATA* terms for father F.
3. Indifferently direct address and reference: Somali *adeer* FB, Melpa *ta* F, 'dad,' Iafar *atok* FB, apparently all the Eskimo *ATA* terms for father F, the same for most Siouan *(T)ATA* terms, Rundi *data* F, 'dad,' Mbuti *tata* GdPt, etc.

The situation is the same for the reflexes of *(P)APA*:

1. Direct address: Masai *papa* 'dad,' Dorobo *papa* 'dad,' Goula Iro *páá́* 'dad,' Kikuyu *baba* 'dad,' Gurung *a-pa* 'dad,' Lakher *ipa* 'dad,' Santali *baba* 'dad,' Mae Enga *apane* 'dad,' Kanada *appa* 'dad,' Ao Chongli *ba* 'dad,' Latin *pappa* 'dad,' Classical Greek *páppa* 'dad,' and a lot more.
2. Reference: Tibetan *apʰa* F, Newari *bā* ~ *abu* F, Santali *appa* F, Angami *apo* F, Kwoma *apok* F, Kewa *apa* F, Javanese *bapaq* F.
3. Indifferently direct address and reference: Somali *aabbe* F, 'dad,' Sena Gorongosa *baba* F, 'dad,' Mbuti *epa* F, 'dad,' Malay *bapa* F, 'dad,' Huli *apa* F, 'dad.' Apparently, no distinction is made in many Tibeto-Burmic languages.

6. ANTHROPOLOGICAL DISCUSSION

6.1. *(K)AKA*: A MALE ELDER ON THE MOTHER'S SIDE

In our 2002 article, we established that *(K)AKA* originally referred to the mother's brother MB, the elder brother B+ and the grandfather GdF, *i.e.* a class of parents including male elders, but not the father F and the father's brother FB {B+, MB, GdF} (Diagram A).

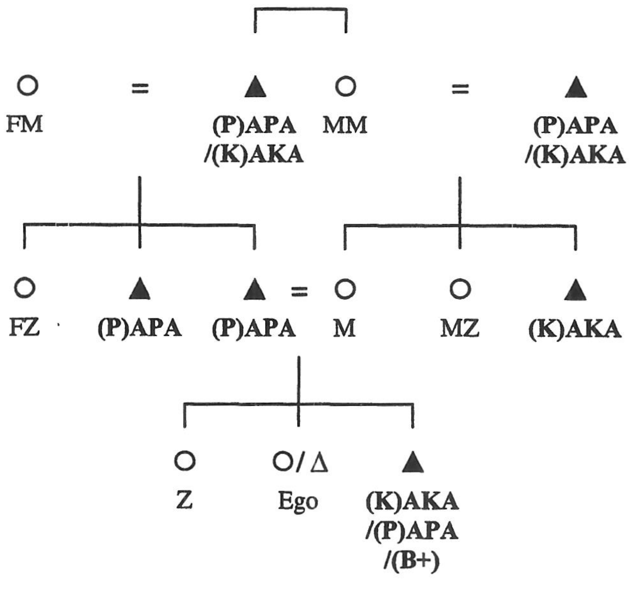


Diagram A. Relative positions of *(P)APA* and *(K)AKA* showing overlapping situations. *(T)ATA* positions are the same as *(P)APA*.

Two conclusions were drawn from this cross-generational semantic pattern. The first was that this class of parents which excluded the 'father' F was probably the masculine side of a group of relatives to which the mother M belonged, thus was pointing to the existence of groups where filiation and blood ties were recognized (exogamous groups). The second conclusion was that distinction (or status) based on age was certainly of pre-eminent importance in the Proto-Sapiens social organization; two features, by the way, that Rivers (1907: 319-322) suggested were characteristic of the "classificatory" kinship system at the time of its origin.

However, the filiation group hypothesis entailed some difficulties since actually, none of the filiation lines, either patrilineal or matrilineal, exactly accounted for the relationships given in the etymological series. On the one hand, the male elders of the mother's group, when it was patrilineal, are the mother's brother MB and the mother's father MF, but certainly not the elder brother B +, who belongs then to the father's group. On the other hand, the male elders of the mother's group in a matrilineal situation are the elder brother B+, the mother's brother MB and the mother's mother's brother MMB (a great-uncle on the maternal side), but not the father's father FF. Consequently the presence of a grandfather GdF and the elder brother B+ in the same series were apparenly inconsistent. To overcome this apparent inconsistency, we appealed to two hypothesis: cross-cousin marriage and filiation changes.

We indicated that cross-cousin marriage equated at generation +2 the father's father FF with the mother's mother's brother MMB. This "miracle" occurs when the mother's mothers brother MMB marries the mother's father's sister MFZ (diagram C). Consequently, matrilineal cross-cousin marriage accounted for three relationships: *(K)AKA* = {B+, MB, GdF (FF = MMB)}. But there was still one relationship left to be explained: the mother's father MF. So we posited that at some point in the past, the lines of filiation changed in some of the societies that were issued from the ancestral root. These changes explained why both grandfathers were addressed in the comparative data. Finally, we constructed a double model (matrilineal and patrilineal) based on cross-cousin marriage, that we represented on two diagrams (B and C)

The cross-cousin marriage hypothesis not only explained the grandfathers problem, but in fact made envisionable that all the relationships (above ego), either consanguineal of affinal, were expressed by a limited number of terms. Such a system also leads one to suppose that the Proto-Sapiens social organization functioned on the basis of two intermarrying groups, or exogamous moieties, comparable to the australian marriage classes. It was clear, though, that a lot of questions remained to be answered, notably how it was that such a terminology ignored generation levels, how such a system dealt with relatives younger than ego, what were the term used to address the male elders belonging to the father's group, and finally what could have been the terms used to address the feminine relatives in the original system.

6.2. *(P)APA* AND *(T)ATA:* A MALE ELDER ON THE FATHER'S SIDE

It was not long before we found out that *(P)APA* and *(T)ATA* were precisely the terms designating the male elders of the opposite father's group.

As we already stated in section 5.2, there is a striking symmetry between the respective semantic patterns of *(P)APA* ~ *(T)ATA* and of *(K)AKA*. {(B+), MB, GdF} is consistently mirroring {(B+), F, FB, GdF} and consequently, all the remarks that were made concerning the first pattern must apply to the second one. The first observation was about the existence of filiation groups, the second one was about age distinction, that we guessed was a major custom shaping the Proto-Sapiens society, just as it still does today in numerous pre-industrial societies. We already mentioned in sections 5.2. and 5.3 societies for which status based on age is essential and thus classify or used to classify with such terms all the males above ego on the father's side – the same happens on the mother's side.

Just the same way that we explained the discrepancies of the *(K)AKA* pattern, we can explain those pertaining to the pattern *(P)APA* and *(T)ATA* {B+, F, FB, GdF}. The patrilineal version accounts for {B+, F, FB, FF}, and the matrilineal filiation and cross-cousin marriage explains {F,FB, MF (=FMB)}. Diagrams B and C clearly illustrate both situations.

6.3. *(P)APA* AND *(T)ATA* VIS-À-VIS *(K)AKA*

Now, more precisely, in a matrilineal filiation (Diagram B), *(K)AKA* refers to the elder brother B+, the mother's brother MB, and the father's father FF, while *(P)APA* and *(T)ATA* refer to the father F, the father's brother FB, and the mother's father MF. In a patrilineal filiation (Diagram C), *(K)AKA* refers to the mother's brother MB and to the mother's father MF, while *(P)APA* and *(T)ATA* refer to the elder brother B+, the father F, the father's brother FB and the father's father FF. This is the only explanation that accounts, with no overlapping, for all the relationships comprised in the semantic series, stemming from the statistical calculations. Moreover, in such a model of cross-cousin marriage, as we already mentionned, great-uncles on either the paternal or the maternal side are assimilated to grandfathers. This fact is frequently observed in the ethnological data. Below are these patterns given as equations:

Matrilineal filiation: *(P)APA* and *(T)ATA* = {F, FB, MF (= FMB)}; *(K)AKA* = {B+, MB, FF (= MMB)}

Patrilineal filiation: *(P)APA* and *(T)ATA* = { B+, F, FB, FF (= MMB}; *(K)AKA* = {MB, MF (= FMB)}

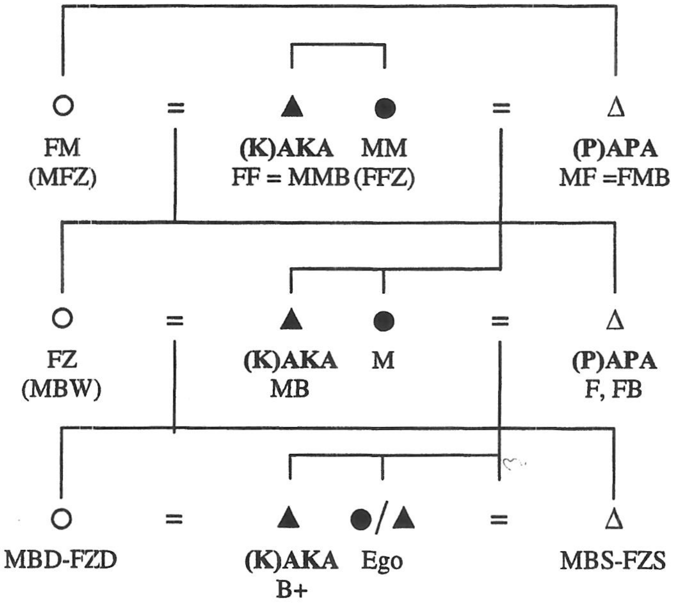

FM
(MFZ)
(K)AKA MM
FF = MMB (FFZ)
(P)APA
MF =FMB
FZ
(MBW)
(K)AKA M
MB
(P)APA
F, FB
MBD-FZD
(K)AKA Ego
B+
MBS-FZS

Diagram B. ***(P)APA*** **and** ***(K)AKA*** **in a matrilineal filiation.** ***(T)ATA*** **positions are the same as** ***(P)APA*.**

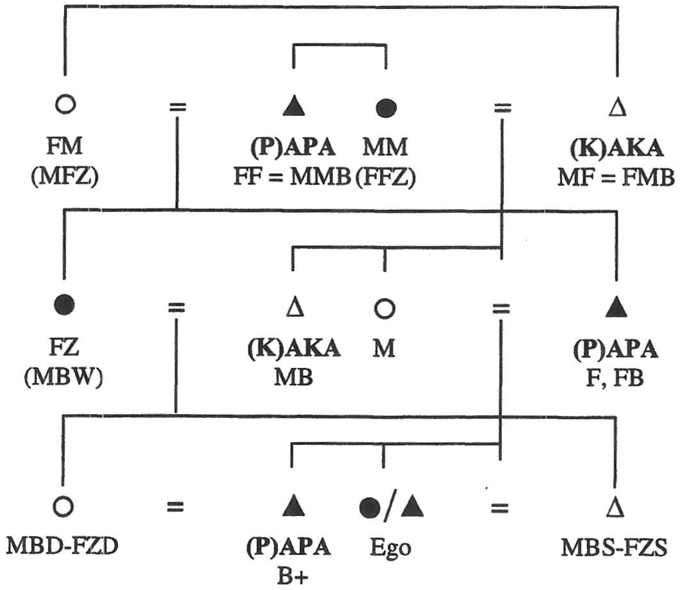

FM
(MFZ)
(P)APA MM
FF = MMB (FFZ)
(K)AKA
MF = FMB
FZ
(MBW)
(K)AKA M
MB
(P)APA
F, FB
MBD-FZD
(P)APA Ego
B+
MBS-FZS

Diagram C. ***(P)APA*** **and** ***(K)AKA*** **in a patrilineal filiation.** ***(T)ATA*** **positions are the same as** ***(P)APA*.**

6.4. A POSSIBLE ORIGIN FOR OTHER KINSHIP SYSTEMS

All the conclusions that were drawn in Matthey de l'Etang & Bancel (2002) with respect to the compatibility of our model with extant types of kinship systems are in no way modified by the present study.

In the first place, this model can be the starting point for crow-omaha system types. Both Lowie and Radcliffe-Brown emphasized how crow and omaha systems could derive their architecture from the fact that ego calls all members of one lineage (except his own) or clan with just two terms: one for the feminine relationships, the other for the masculine (Lowie 1934: 109; Radcliffe-Brown 1941: 9-17 and 1956: 68-88). In the type II crow system, as defined by Lounsbury (1964) – which is a matrilineal system – ego calls 'father' F every male of the father's clan (*i.e.* the father, the father's brother, and the father's mother's brother: {F, FB, FMB}), and calls every female of the same clan 'father's sister' FZ. At the same time, ego calls every male of the mother's clan (*i.e.* B+, MB, MMB) 'elder brother' B+. In the type II omaha system (Lounsbury: 1964), which is patrilineal, ego equates to a 'mother's father' MB all the masculine members belonging to the mother's clan except at generation + 2, and equates to a mother M all the feminine members of the mother's clan.

One of the conceivable transformations of our model into crow and omaha system types would be into the type II crow system that we just briefly outlined. In our matrilineal model (Diagram B), ego calls *KAKA* the male elders of the mothers group, *i.e.* the elder brother , the mother's brother, and the father's father who is at the same time the mother's mother's brother: {B+, MB, MMB (= FF)}. He calls *(P)APA* or *(T)ATA* the male elders of the father's group, which includes the father F, the father's brother FB and the mother's father MF, who is also the father's mother's brother FMB {F, FB, FMB (= MF)}. Aren't these relationships precisely the ones that we described just above for the crow II system? Naturally, the transformation of our model into this type of system or other crow-omaha systems would entail some transformations, notably the creation of additionnal filiation groups (clans) and the naming of relationships for the generations below ego[9].

In other respects, the kinship configuration, illustrated by Diagrams B and C ,articulated on cross-cousin marriage as it is, is likely to be the starting point for a dravidian system. Generating such a system, or any system based on exogamous moieties from our model, would basically imply its splitting into generation levels. This splitting would entail marriage between cross cousins within a given generation. The terminological consequences would be the reduction of the *(K)AKA* and *(P)APA* ~ *(T)ATA* designations to only one generation and the invention or remodelling[10] of terms, in order to clearly differentiate each of the remaining generational relationships of the system.

7. CONCLUSION AND PERSPECTIVES

Our two papers, we believe, finally answer a question, which has been greatly debated since the XIXth century, as to why so many apparently non-related languages use phonetically similar terms of the shape *(P)APA* or *(T)ATA* to refer to the father F. Languages across the world use them because these forms inherited them from an ancestral common language, from which they all descend. This Proto-Sapiens language, must date at least to 50,000 BP. This may be an irritating statement, but none of the answers that have been proposed for decades to explain this *(P)APA* and *(T)ATA* worldwide "convergence" adequately accounts for the phonetic and semantic properties of these words. In consequence, our knowledge of our ancestral kinship terminology now extends to three terms: *(P)APA*, *(T)ATA* and *(K)AKA*.

But these are not, essential as they seem to be, the only conclusions that the global comparison allows us to reach. Not only can we conclude that these nursery kin terms are beyond any doubt among the oldest words of mankind, but we can also tell what they originally meant. *(P)APA* ~ *(T)ATA* and *(K)AKA* referred to male relatives older than ego belonging to the group of ego's father and the group of ego's mother, respectively. Taken together, these classificatory meanings are absolutely consistent with the conclusions we already drew in 2002 about the nature of kinship in the Proto- Sapiens society. These conclusions can be summed up as follows:

---

[9] Numerous ethnological examples have been found, which exemplify such cross-generational features, notably some of the terms icluded in the present article. Mayer-Durlach (1928: 21) mentioned that the matrilineal Tlingits used the term ***k'ák'*** to designate the mother's brother MB and that the plural form of this term was used to refer to the ancestors (apparently masculine) belonging to the mother's clan. We mentioned earlier (sections 4.1.1 and 4.3) other examples where *(P)APA* and *(T)ATA* forms are used to refer to male members of the father's clan. Last but not least, and one of the most striking examples is Miwok, which displays a (patrilineal) omaha type kinship system and has a term ***kaka*** to address the mother's brother MB, the mother's brother's son MBS and the mother's brother's son's son MBSS, a term ***apa*** to designate the father F, a term ***ata*** to designate the father's brother FB, and ***papa*** to refer to the grandfather GdF.

[10] The dravidian systems of the Dravidian peoples themselves display numerous cognates of *(K)AKA* and *(P)APA* ~ *(T)ATA*, distributed through the range of kin relationships.

Gender recognition, age of individuals with respect to ego, membership to a filiation group and prescriptive cross-cousin marriage must have been among the features that the ancestral terminology was designed to express, by means of a limited set of terms, as only classificatory relationships were recognized.

At a social level, exogamous moieties implying cross-cousin marriage as well as status of individuals based on their respective age and maybe their gender, were already in place in the Proto-Sapiens society.

Possible lines of evolution can be delineated from such a model based on age distinction and exogamous moieties to systems comprising multiple clans, thus prohibiting bilateral cross-cousin marriage but still maintaining cross-generational terminology, such as crow-omaha systems, or to prescriptive systems keeping cross-cousin marriage but clearly differentiating generation levels, such as dravidian systems. Other developments into or from systems expressing reciprocity at various generation levels cannot be envisionned at this stage, due to the paucity of information pertaining to younger generations, but cannot be excluded either.

We have certainly been getting through a big step since our study of *KAKA*, but still more is needed to ascertain or invalidate our propositions. Among our priority tasks, working out the feminine relationships certainly constitutes the most crucial one, as we need to know whether and how the relationships left in blank in our model can be filled in. This is why one of our future publication will be dedicated to the etyma *(M)AMA, (N)ANA,* and *(J)AJA*. The second essential goal that we are pursuing is to extend our knowledge of specific and contextual uses of kin terms, looking for some general features that can explain the multiple terminological forms, which are recognized at a global level for a single (or classificatory) kin relationship. Last but not least, emphasis will be put on generation below ego, in order to fully characterize the system that our Proto-Sapiens ancestors conceived.

REFERENCES

Achemenid Royal Inscriptions, Oriental Institute, University of Chicago. <http://oi.uchicago.edu/OI/PROJ/ARI/ arilexform.html>.

ALLEN Nick J. 1998. "The Prehistory of Dravidian Type Terminologies," *in* GODELIER, TRAUTMANN & TJON SIE FAT 1998.

BANCEL Pierre J. & Alain MATTHEY DE L'ETANG. 2002. "Tracing the Ancestral Kinship System: The Global Etymon *KAKA*. Part I: A Linguistic Study," *Mother Tongue*, VII, 209-244.

BECK Brenda E. F. 1972. *Peasant Society in Konku: a Study of Right and Left Subcastes in South India.* Vancouver: University of British Columbia Press.

BENGTSON John D. & Merritt RUHLEN. 1994. "Global Etymologies," *in* RUHLEN 1994*b*.

BLAŽEK Václav. 2002. "Toward the Berber Kinship Terminology," *in* NAÏT-ZERRAD Kamal (ed.). *Articles de linguistique berbère, Mémorial Werner Vycichl.* L'Harmattan: Paris, 103-135.

BOSSÉ Olivier. 1983. "Le Vocabulaire de parenté telugu", *L'Homme* XXIII, 2, 97-108.

CHARLES-EDWARDS Thomas. 2003. *Early Irish and Welsh Kinship.* Oxford: Oxford University Press.

CUISENIER Jean & André MIQUEL. 1965. "La Terminologie arabe de la parenté. Analyse sémantique et analyse componentielle," *L'Homme* V, 3-4, 17-59.

CURR Edward. M. 1886-1887. *The Australian Race: Its Origin, Languages, Customs, Place of Landing in Australia, and the Routes by Which It Spread Itself Over the Continent.* Melbourne: J. Ferres.

Dictionary of the Spoken Taino Language. <http://members.dandy.net/~orocobix/langlinks.htm>.

DOLGOPOLSKY Aharon. 1998. *The Nostratic Macrofamily and Linguistic Paleontology.* Cambridge (Engl.): McDonald Institute for Archeological Research.

EHRET Christopher. 1980. *The Historical Reconstruction of Southern Cushitic. Phonology and Vocabulary.* Berlin: Dietrich Reimer.

EMENEAU Murray B. 1955. *Kolami: A Dravidian Language.* Berkeley University Publications in Linguistics XII.

GODELIER Maurice, TRAUTMANN Thomas R. & TJON SIE FAT Franklin E. (eds.). 1998. *Transformations of Kinship.* Washington : Smithsonian Institution Press.

GREENBERG Joseph H. 1987. *Language in the Americas.* Stanford: Stanford University Press.

Greenberg J. H. 2000-2001. *Indo-European and Its Closest Relatives: The Eurasiatic Family,* vol. I: *Grammar;* vol. II: *Lexicon.* Stanford: Stanford University Press.

Grigson Wilfrid Vernon. 1949. *The Maria Gonds of Bastar.* London: Oxford University Press.

Guthrie Malcolm. 1967-1971. *Comparative Bantu.* 4 vol. Farnborough: Gregg International.

Haberland Eike & Marcello Lamberti. 1988. *Ibaaddo Ka-Ba'iso. Culture & Language of the Ba'iso.* Heidelberg: Carl Winter.

Hage Per. 2003. "On the Reconstruction of the Proto-Nostratic System", *Zeitschrift für Ethnologie* CXXVIII, 311-325.

Halloran John A. 1999. *Lexicon of Sumerian Logograms.* <http://www.turulmadar.hu/hunok/Szum-a.html>.

Hoijer Harry. 1956. "Athapaskan Kinship Systems," *American Anthropologist,* DVIII, 309-334.

Izard Michel. 1965. "La Terminologie de parenté bretonne," *L'Homme* V, 3-4, 88-100.

Jakobson Roman. 1960. "Why Mama and Papa?," *in Perspectives in Psychological Theory, Essays in Honor of Heinz Werner.* New York.] French translation 1969. "Pourquoi papa et maman?," *in* Roman Jakobson, *Langage enfantin et Aphasie.* Paris: Minuit.

Jochelson Waldemar.1908. *The Koryak. The Jesup North Pacific Expedition Publications,* vol. VI. American Museum of Natural History, New York. Memoir, Vol. X, Parts 1-2. Leiden: E. J. Brill; New York: G. E. Stechert & Co.

Kirchhoff Paul. 1932-1933."Verwandtschaftsbezeichnungen und Verwandtenheirat," *Zeitschrift für Ethnologie,* DXIV, 41-71.

Koelle Sigismund. 1854. *Polyglotta Africana.* Londres: Church Missionary House.

Lounsbury Floyd G. 1964. "A Formal Account of the Crow- and Omaha-Type Kinship Terminologies," *Explorations in Cultural Anthropology. Essays in Honor of George Peter Murdock.* New York : McGraw Hill.

Lowie Robert H. 1934. "The Omaha and Crow Kinship Terminologies," *Verhandlungen des XXIV. Internationalen Amerikanisten-Kongresses,* 103-108, Hamburg: Friederichsen De Gruyter [repr. in *Lowie's Selected Papers in Anthropology,* 100-110, Berkeley, 1960 : University of California Press].

Lubbock Sir John. 1889. *The Origin of Civilisation and the Primitive Condition of Man. Mental and Social Condition of Savages. 5th Edition with Numerous Additions.* London: Longmans & Green.

Matthews G. Hubert. 1959. "Proto-Siouan Kinship Terminology," *American Anthropologist* LXI, 2, 252-279.

Matthey de L'Etang Alain & Pierre J. Bancel. 2002. "Tracing the Ancestral Kinship System: The Global Etymon *kaka.* Part II: An Anthropological Study." *Mother Tongue* VII, 245-258.

Mayer-Durlach Theresa. 1928. *The Relationship Systems of the Tlingit, Haida and Tsimshian.* New York : American Ethnological Society.

Meeussen A. E. 1969. *Bantu Lexical Reconstructions.* <http://www.linguistics.berkeley.edu/CBOLD/Docs/Meeussen.html>.

Miller Wick R. 1967. *Uto-Aztecan Cognate Sets.* Berkeley-Los Angeles: University of California Publications in Linguistics XDVIII.

Morgan Lewis H. 1871. *Systems of Consanguinity and Affinity of the Human Family.* Washington : Smithsonian Institution.

Murdock George P. 1959. "Cross-Language Parallels in Parental Kin Terms," *Anthropological Linguistics* I, 9, 1-5.

Murdock George P. 1957. "World Ethnographic Sample," *American Anthropologist* LIX, 664-687.

Parkin Robert. 1987. "Kin Classification in the Karakorum, " *Man* New Series XXII, 1, 157-170.

Pokorný Julius. 1959. *Indogermanisches etymologisches Wörterbuch.* Bern. <http://iiasnt.leidenuniv.nl/cgi-bin/main.cgi?flags=endnnnl&root=leiden>.

Radin Paul. 1925. "Maya, Nahuatl and Tarascan Kinship Terms," *American Anthropologist* XXVII, 1, 100-102.

Radcliffe-Brown Alfred R. 1941. "The Study of Kinship Systems," *Journal of the Royal Anthropological Institute of Great Britain and Ireland,* LXXI, 1-18.

Rivers William Halse. 1907. "On the Origin of the Classificatory System of Relationships," *Anthropological Essays presented to E. B. Tylor,* Oxford : Clarendon.

Ruhlen Merritt. 1994*a. The Origin of Language. Tracing the Evolution of the Mother Tongue.* New York: John Wiley.

Ruhlen Merritt. 1994*b. On the Origin of Languages. Studies in Linguistic Taxonomy.* Stanford: Stanford University Press.

Schurmann Franz. 1962. *The Mongols of Afghanistan. An Ethnography of the Moghols and Related Peoples of Afghanistan.* s'Gravenhage: Mouton.

Seligman Brenda. 1923. "Studies in Semitic Kinship I. The Relationship System," *Bulletin of the School of Oriental Studies,* III, 1, 51-68.

Starostin Sergej. 2003. *The Tower of Babel. Evolution of Human Languages Project.* <http://starling.rinet.ru/Intrab.htm>.

Shimkin Dimitri N. 1941. "The Uto-Aztecan System of Kinship Terminology," *American Anthropologist* XDIII, 2, 223-245.

Srinivas Mysore Narasimhachar. 1942. *Marriage and Family in Mysore.* Bombay: New Book.

Strand Richard F. 2003. *Nuristân, Hidden Land of the Hindu-Kush.* <http://users.sedona.net/~strand/>.

Trask Larry. s.d. *Where Do the Mama/Papa Words Come From?* <http://www.sussex.ac.uk/linguistics/documents/where_do_mama2.pdf>.

Trautmann Thomas R. 1981. *Dravidian Kinship.* Cambridge (Engl.): Cambridge University Press.

Vocabularium cornicum. <http://www.carlaz.com/cornish/voccorn.txt>.

WARMELO Nicolaas Jacobus VAN 1931. *Kinship Terminology of the South African Bantu.* Department of Native Affairs, Ethnological Publications II, Pretoria: Government Printer.

WESTERMARCK Edward. 1921 [5th ed.]. *The History of Human Marriage*, 3 vols. London: Macmillan.

WORDICK Frank J. F. 1970. *A Generative-Extensionist Analysis of the Proto-Indo-European Kinship System With a Phonological and Semantic Reconstruction of the Terms.* Ph.D. thesis, Ann Arbor (Michigan).

Yourdictionary.com. <http://www.yourdictionary.com/>.

Appendix A

Reflexes of Proto-Sapiens *(P)APA ~ (B)ABA* 'male elder on the father's side'

Hereafter are given more than 1,200 potential reflexes of the Proto-Sapiens root *(P)APA ~ (B)ABA* 'male elder on the father's side.' The taxonomical hierarchy is indicated by **BOLD CAPITALS: SMALL BOLD CAPITALS: plain bold:** ***bold italics***. For reasons of space, only partial subclassification is indicated. References between brackets are not listed for the same reason; a lot of them can be found in the Appendix of our paper in *Mother Tongue* 7 (2002), others will be communicated by e-mail on demand.

KHOISAN: PROTO-NORTH KHOE ***bá*** **F** [Starostin 2004]**:** //Au//en *ba* F, *ba !ku-ma* FB [Bleek 1923-26], !Kung *bā* F, *ba siŋ* FB, *baba* FF, *batai* MF [Bleek 1923-26], Ju'hoan, Ju/'hoansi (San) *ba* F [Starostin 2004, Schwimmer 2003], !O!kung *-ba ~ pa* F [Starostin 2004], Tsumkwe *bá* F [Starostin 2004], Tsintsabis *bá* F [Starostin 2004], Okongo *bá* F [Starostin 2004], Leeunes *bá* F [Starostin 2004], Mpunguvlei *bá* F [Starostin 2004], Cuito *bā* F [Starostin 2004], Cuando *bá ~ pá* F [Starostin 2004], South Omatako *bá* F [Starostin 2004], Kameeldoring *bà* F [Starostin 2004], Lister *bá* F [Starostin 2004]; **PROTO-KHOE-KHOE** ***abo*** **F** [Starostin 2004]: Nama *awo-b ~ abo-b* F (arch.) [Hoernlé 1925], !Ora *ʔábó-b* F [Hoernlé 1925], Tsaukwe *aba* F [Starostin 2004], Korama *api* F [Maingart 1932], Naron *aba ~ auba* F, Ch, *awe* (ad.) F, *awe* (ad.) FB [Bleek 1923-26, Starostin 2004], !Xam *ibo* F [Bleek 1923-26].

NIGER-KORDOFANIAN: KORDOFANIAN: Talodi *gnapa* F, FB [Seligman 1932], Lafofa *imba* F, FB [Seligman 1932]; **PROTO-NIGER-CONGO** ***(b)aba*** **F: Mande:** Susu Yalunka (Sóso Sóóliima) ***fááfee*** F [Koelle[1]], Susu dial. (Kísekise) ***fááfee*** F [Koelle 1854], Susu dial. (Téénɛ) ***fááfa*** F [Koelle 1854], Gadyaga Soninke (Gadžáága) ***báába*** F [Koelle 1854], Vai (Vei) ***fa*** F, ***ba*** M [Koelle 1854], Kono (Kɔ́no) ***fa*** F [Koelle 1854], Mandinka ***fa*** F [Koelle 1854], Sidyanka (?) Mandinka (Kaabúŋga) ***fa*** F [Koelle 1854], Toronka Mandinka (Torɔ́ŋka) ***fa*** F [Koelle 1854], Futa Jallon Mandinka (Dšáluŋka) ***fa*** F [Koelle 1854], Kankanka Mandinka (Káŋkáŋka) ***fa*** F [Koelle 1854], Bambara ***fa*** F, ***ba*** M [Koelle 1854, Paques 1954], Beng ***aba*** F [Ryan 2001]; **West Atlantic:** Bijago (Bidžóógo) ***báába*** F [Koelle 1854], Fula ***báába*** F Carrière [pers. com.], Futa Jallon Fula (Púloo Tímboo) ***báába*** F [Koelle 1854], Senegal Fula (Púloo Sáálum) ***báába*** F [Koelle 1854], Gobir Fula (Púloo Góóbuuru) ***báába*** F [Koelle 1854], Kano Fula (Púloo Káno) ***báába*** F [Koelle 1854], Non ***pap*** F [Tastevin 1936], Wolof ***bai*** F, ***baye*** FB [Koelle 1854, Carrière pers. com., Irvine 1974], Balant (Bulánda) ***fááre ~ báába*** F [Koelle 1854], Banyun (Bányuun) ***ába*** F [Koelle 1854], Bulama Mankanya (Bóóla) ***pápa*** F [Koelle 1854], Sadar Mankanya (Sáraar) ***pápa*** F [Koelle 1854], Pepel (Pɛ́pɛɛl) ***páápa*** F [Koelle 1854], Diola ***abadyá ~ ãmpa*** F, FB, ***apa*** GdF [Thomas

---

[1] The languages quoted in Koelle (1854) have been identified with the help of the studies on the *Polyglotta africana* gathered in the *Sierra Leone Language Review* III (1964) and IV (1965), which are summarized in Dalby (1964). The glossonyms given by Koelle's informants are between parentheses. Koelle's transcription has been transposed as closely as possible to IPA. It must however be remarked that his acute accent (which he describes as transcribing a phonetic stress) must obviously have noted a high tone in many cases, the specific notation (and indeed the very notion) of which was unknown in the middle of the XIXth century. We reproduce here this accent as in the original.

1958], Diola (Fíílham) *páápai* F, *ámpa* GdF [Koelle 1854], Badyar (Pádšaade) *ápɛ* F [Koelle 1854], Bedik *àbá* F, FB [Ferry & Guignard 1984, Ferry 1991], Biafada (Biááfada) *báába* F [Koelle 1854], Beliyan *fàbá* F, FB, *aɓaye* B, Z [Ferry & Guignard 1984, Ferry 1991], Konyagi *àpá* F, FB [Ferry 1991], Nalu (Nálu) *baabá ~ baa* F [Koelle 1854], Limba (Límba) *páápa* F [Koelle 1854], Landuma (Lándooma) *páápa* F [Koelle 1854], Baga (Bága of Káálum) *báápa* F [Koelle 1854], Temne (Tímne) *pa* F [Koelle 1854], Kafu Bullom (Búlom) *púúa* F [Koelle 1854], Sherbro Bullom (Mámpa) *bám* F [Koelle 1854], Kissi (Kísi) *fa ~ fɔ́nyaa* F [Koelle 1854]; **North Central Niger-Congo:** Dewoi (Dééwoi) *ba* F [Koelle 1854], Bassa (Básа) *ba* F [Koelle 1854], Grebo (Kréébo) *búúo* F [Koelle 1854], Uncertain Kru (Gbee) *ba* F [Koelle 1854], Dogon *ba* F *babu* FB–, *badie* FB+ [Héritier 1981], More (Mɔ́ɔ́se) *ba* F [Koelle 1854], Tallensi *ba* F [Fortes 1949], Gurma (Gúrma) *ba* F [Koelle 1854], Sewe *mba* F [Griaule 1941], Tupuri *pa̤* F [Mouchet 1938], Kali *ba̤a̤* F [Mouchet 1938], Mundang *pa̤* F [Mouchet 1938], Mono *pa̤m* F [Mouchet 1938], Day *baî* F *baila* FF [Adler 1966], ***Proto-Gbaya ba* F, FB** [Moñino 1995], Gbaya Toongo *bàfâ* F, FB [Moñino 1995], Gbaya Lai *sɛ̀m-báà* FZ [Moñino 1995], Gbaya Biyanda *bàfâ* F, FB [Moñino 1995], Gbaya Mbodomo *bàŋ* F, FB [Moñino 1995], Bofi *bàʔā* F, FB [Moñino 1995], Gbaya Buli *bàfâ* F, FB [Moñino 1995], Gbaya Kara Bodoe *báà* FZ [Moñino 1995], Gbaya Kara Bokpan *báà* FZ [Moñino 1995], Gbaya Kara Bonina *báà* FZ [Moñino 1995], Gbaya Kara Bugui *báà* FZ [Moñino 1995], Gbaya Boya *sɛ̀m-báà* FZ [Moñino 1995], Gbaya Yaayuwee *sɛ̀m-báà* FZ [Moñino 1995], Gbaya Bokoto *báà* FZ [Moñino 1995], Gbaya Bozom *bàʔā* F, FB, *báà* FZ [Moñino 1995], Gbaya Boʔoro *báà* FZ [Moñino 1995], Bangando *bàfâ* F, FB *bàù* FZ [Moñino 1995], Manza *bàà* F, FB [Moñino 1995], Ngbaka Minagende *bàā* F, FB [Moñino 1995], Vehicular Sango *bàbá* F [Moñino 1988], Gbanu *bóò* FZ [Moñino 1995], Kpatiri *bà* F [Moñino 1988], Gbanzili *bùbá* F [Moñino 1988], Baka *bàbā* F [Moñino 1988], Mundu *òbá* F [Moñino 1988], Ndunga-le *(e) bá* F [Moñino 1988], Dongo-ko *àbá* F [Moñino 1988], Ama-lo *búbà* F [Moñino 1988], Sere *và* F [Moñino 1988], Bare *và* F [Moñino 1988], ***Proto-Banda àbá* F** [Moñino 1988], Linda *àbá* F [Moñino 1988], Yangere *àbá* F [Moñino 1988], Ngao *àbá* F [Moñino 1988], Vara *àɓà* F [Moñino 1988], Wojo *àbá* F [Moñino 1988], Dakpa *àbá* F [Moñino 1988], Langbasi *ɓàbà* F [Moñino 1988], Mbanza *àbá* F [Moñino 1988], Zande *buba* F, FB, male members of the father's clan in same generation as F, *ba* (ad.) B+ [Seligman 1932], Nzakara *bā* F [Moñino 1988], Geme *(à-) bā* F [Moñino 1988]; **South Central Niger-Congo:** Akan *ba* S, D [Schwimmer 1997], Fanti *papa* F, *papa n'nua banyin* FB, *ba* S, D [Kronenfeld 1973], Ashanti *ba* S, D [Basehart 1961], Abron *bi* S, D [Alland 1954], Baule *baba* elder, *ba* S, D [Etienne 1967], Yoruba *baba* F, FB, *baba* B+ [Ajisafe 1924], Egbado Yoruba (Ɔta) *báába* F, *babááiila* GdF [Koelle 1854], Egba Yoruba (Ɛ́gba) *bába* F, *babáála* GdF [Koelle 1854], Ijesha Yoruba (Iidžɛ́ša) *bába* F, *báballa* GdF [Koelle 1854], Oyo Yoruba (Yórubaa) *bába* F, *bábaabába ~ bábaanla* GdF [Koelle 1854], Yagba Yoruba (Yáágba) *bába* F, *bábaabába ~ babáágba* GdF [Koelle 1854], Bunu Yoruba (Ékii) *báába* F *babáála* GdF [Koelle 1854], Jumu Yoruba (Džúmu) *báába* F, *baabáila* GdF [Koelle 1854], Aworo Yoruba (Ɔwórɔ) *bába ~ ɔ́ba* F, *ɔbáálɛ* GdF [Koelle 1854], Ijebu Yoruba (Džɛ́bu) *bába* F, *babálla* GdF [Koelle 1854], Ife Yoruba (Ífɛ) *bába* F, *bábaarɛɛa* GdF [Koelle 1854], Ondo Yoruba (Óndoo) *bába ~ bai* F, *bábaakéta* GdF [Koelle 1854], Jekri Yoruba (Džɛ́ɛ́kiri) *ɔ́wa* F [Koelle 1854], Urhobo [Bini group] (Sóóbo) *wááwa* F, *wááwa* GdF [Koelle 1854], Kamuku [Ucinda?] (Kaamúku) *báába* F [Koelle 1854], Bassa Nge? (Básа) *ba* F [Koelle 1854], Bankwett Bamileke *mba* F [Léger 1932], ***Proto-Bantu -bààbá* F** [Guthrie 1967-71], Proto-Manenguba *mbáá* GdF [Hedinger 1987], Basaa *bá ~ mba* F [Koelle 1854, Blench 1991], Tunen *áp̀* (ad.) F, 'respectful term to address an old man' [Dugast 1967], Boa *baba* F [Guthrie 1967-71], Aŋba *fafa* F [Guthrie 1967-71], Tetela *mbapa* F [Guthrie 1967-71], Nyanga(tom) *apa* F, FB, *apaa* GdF [Tornay 1981], Gusii *babá* my M [Whiteley 1959, Mayer 1965], Kuria *babá* my M [Whiteley 1959], Kikuyu *βaaβa*, *baba* (ad.) F [Guthrie 1967-71, Middleton 1953], Sukuma *βaaβa* F [Guthrie 1967-71], Gogo *baba* (ad.) F, FB, MZH, FZH [Rigby 1969], Sagala *aβa* F [Guthrie 1967-71], North Mbundu (ŋgóóla) *pái-ɛtu* F [Koelle 1854], Bolo (Lubálo) *pai* F [Koelle 1854], Songo (Sɔ́ɔ́ngo) *páápa* F [Koelle 1854], Unguja *ɓaɓa* F [Guthrie 1967-71], Sena Gorongosa *baba*, *bambo* (ad. & ref.) F, *bambo ŋkulu* FB+, *bambo ŋgono* FB– [De Sousberghe 1965], Yao *βaaβa* F [Guthrie 1967-71], Cuabo (Kíriiman) *báába* F *bííbi* GdF [Koelle 1854], Zezuru *ɓaɓa* F [Guthrie 1967-71], Venda *baba* F [Guthrie 1967-71], Lovedu *papa* F [Krige 1964], Northern Sotho (Moletlane) *papa* (ad.) F, WF [Van Warmelo 1931], Zulu *uɓaɓa* F, *baba* (ad.) F, FB, *babamkulu* FF [Guthrie 1967-71, Gluckman 1950, Warmelo 1931], Xhosa *(u) bawo* F, WF, *(u) bawokasi* FB– [Van Warmelo 1931], Swazi *ɓaɓe* (ad.) F, FB [Kuper 1950], Ndebele *ubaba* my F, FB, MZH [Van Warmelo 1931], Tswa [Koelle 1854], Tonga Inhambane (Nyámbaan) *baba* (ad.) F, FB, WF, WB+ [Koelle 1854, Jaques 1927-29].

NILO-SAHARAN: SONGHAI (Tumbúktu) *bába* F [Koelle 1854]; **SAHARAN:** Kagama Kanuri (Káánuri) *ába* F [Koelle 1854], Manga Kanuri (Múnioo) *báwa* F [Koelle 1854], Nguru Kanuri (ŋgúruu) *bááwa* F [Koelle 1854], Kanem Kanuri (Káánem) *ḿbaa* F [Koelle 1854], Kanuri *aba*, *baba* F, FB [Cohen 1960], Teda *aba* F, aged man, *abade* FB [Kronenberg 1958]; **EAST SUDANIC: Eastern:** Aniwa *wúúó* F, FB [Reh 1999], Majang *épɛ́n* F, FB, *ápé* GdF [Unseth 1998], Shabo *babbe* F, *appa* GdF [Fleming 2002a], Kwegu *baabá* my F, *ápá naani* my GdM Hieda 1991, Ingassana (Gamm) *abau* F, FB [Seligman 1932], **Nilotic: *Western Nilotic:*** Shilluk *wá ~ wia* F, FB [Seligman 1932], Lango *papa* F, FB [Seligman 1932], Nuer *gwa* F, FB, MZH, FZH [Seligman 1932], Dinka *wá ~ awa* F, *walen ~ awalen* FB [Seligman 1932], ***Eastern Nilotic:*** Bari *baba* (ad.) F, FB, MZH, FZH [Seligman 1932], Maasai *papa* (ad.) F, FB, MZH, FZH, *ol-apu* MB [Seligman 1932, Hollis 1910], ***Southern Nilotic:*** Dorobo *aba*, *papa* (ad.) F, FB, MZH, *apaa* (ad.) S, D [Huntingford 1951], Keiyo *àpɔ̂* F, FB, MZH [Tornay 1969]; **CENTRAL SUDANIC:** Bongo *babá ~ boma* F, FB [Kronenberg 1981], Mbai *bao* F, FB [Adler 1966], Gula *páá* (ad.) F, *páá-tìka* FB+, *páá-páŋ* FB– [Pairault 1964], Kara *(ka) ába* F [Hieda 1991], Bagirmi

(Báágrmi) *bábii* F, *ŋ́gal bábii* F [Koelle 1854], Mbuti *epa* (ad. & ref.) F [Turnbull 1965]; **KOMUZ:** Uduk *baba* GdF [Fleming 2002b].

PROTO-AFROASIATIC *ʔab-* **F** [Starostin 2004]: **PROTO-SEMITIC** *ʔab-* **F** [Starostin 2004]: Eblaic *abbuʔ* F, *abbuʔ* elder [Wilson 2004], Akkadian *abu* F [Blažek 2002, Achemenid Royal Inscriptions 1998], Ugaritic *ʔab* F [Starostin 2004], Old Babylonian *abu* F [Seligman 1923], Phoenician *ʔb* F [Starostin 2004], Hebrew *ʔāb* F [Starostin 2004, Seligman 1923], Judaic Aramaic *ʔabbā* F [Starostin 2004], Syrian Aramaic *ʔabbā* F [Starostin 2004], Mandaic Aramaic *ab ~ aba* F [Starostin 2004], Northern Aramaic *abhī* F [Morgan 1871], Neo-Syriac (Nestorian) *babee* F [Morgan 1871], Epigraphic South Arabian *ʔb* F [Cuisenier, Starostin 2004], Arabic *ʔab-* F [Morgan 1871], Ge'ez *ʔab* F [Blažek 2002], Tigre (Beni Amer) *ʔab, yibba* (ad.) F, *ʔabuuye* my F, *ʔabuuye* my FB, *ʔabceb* GdF, *ʔabopt* GdM [Seligman 1923, Nakano 1982], Tigrinya *ʔabbo* F [Starostin 2004], Amharic *abbat* F [Seligman 1923, Bieber 1923, Messing 1957], Harari *āw* F [Starostin 2004], East Ethiopic *ābu ~ abot ~ abbä ~ aḇot* F [Starostin 2004], Gurage *ab ~ aḇ ~ aḇi ~ aw* F [Starostin 2004], Mehri *χáyb* F [Starostin 2004], Jibbali *ʔiy* F [Starostin 2004], Harsusi *χayb* F [Starostin 2004], Soqotri *ʔab* F [Blažek 2002]; **PROTO-BERBER** *V-bb-, Vb-b* **F** [Blažek 2002, Starostin 2004], Siwa *abba* F [Blažek 2002], Augila *ábbaa* F [Blažek 2002], Fogaha *ábii* F [Blažek 2002], Zayan *ibba* F [Blažek 2002], Tamazight *aba* F, *ibba* GdF [Blažek 2002], Taitoq *abba* my F [Blažek 2002], Awlemidden *aba ~ oba* F [Blažek 2002], Ayr *abba* F [Blažek 2002], Ahaggar *abba* F [Blažek 2002], Nefusi *bääba* F [Blažek 2002], Djerba *bäävää* F [Blažek 2002], Wargli *baba* F [Blažek 2002], Rif *baaba* F [Blažek 2002], Senhaja *baaba* F [Blažek 2002], Kabyle *baba* F [Blažek 2002], Shilha *bääba* F [Blažek 2002], Zenaga *baba* F [Blažek 2002], Ghat *baba* my F [Blažek 2002], Tuareg *abubaz* MBS [Murphy 1967], Tamashek *abba* F [Bode 2004], Tawllemmet *abba* F [Starostin 2004], Izayan *ibba* F [Starostin 2004], Iznassen *ebbʷa* F [Starostin 2004]; **CHADIC:** Somrai *ʔàbe* man [Starostin 2004], **Proto-Central Chadic** *ʔab-* **F** [Starostin 2004], Ga'anda *bàba* F [Blažek 2002], Higi *bàba* F [Blažek 2002], Mafa *bạ́ạ́bạ* F [Blažek 2002], Giziga *ba* F [Blažek 2002], Muktele *baba* F, FF, MF [Juillerat 1971, Blažek 2002], Nzangi *ạ́bạ* F [Blažek 2002], Gidar *ạ́bbạ* F [Blažek 2002], Munjük *apiy* F [Starostin 2004], Musgu *ába* F [Starostin 2004], Buduma *báwa* F [Koelle 1854], *apa* F [Starostin 2004], Kotoko *abba ~ abāgẹnẹ* F, *abakuraggane* FB+, *babárgene* FB−, *abakāggane* FF [Lebeuf 1941-42]; **Proto-Western Chadic** *ʔub- ~ ʔab-* **F** [Starostin 2004], Hausa *úba* F, FB, MZH, *úba* GdGdF [Greenberg 1947], Kananci Hausa (Káno Hɔ́usa) *úba* F, FB, MZH, *úba* GdGdF [Koelle 1854], Katsinanci Hausa (Kádziina Hɔ́usa) *úúba ~ báába* F [Koelle 1854], Bolewa ~ Fika (Pííka) *bo* F [Koelle 1854], Karekare (Karɛ́ɛ́karɛ) *báába ~ baabá* F [Koelle 1854, Ibriszimow & Porkhomovsky 2001], Bole *bàába* F, *'abaganá* FB, *báa-* B+, *babá* FFZ [Ibriszimow & Porkhomovsky 2001], Ngamo *boonô* F, *baa-* B+ [Ibriszimow & Porkhomovsky 2001], Duwai *pa(a)ppo* F [Haberland & Lamberti 1988], Bade? (Bóde) *áfa* F [Koelle 1854], Ngizim? (ŋgóóďšin) *báába* F [Koelle 1854], Balda *ba* F [Blažek 2002], Uzam *bạ́ạ́bạ* F [Blažek 2002], Mboku *bạ́bạy* F [Blažek 2002], Kobochi *bābá* F [Blažek 2002], Geji *abà* F [Starostin 2003]; **ONGOTAN:** Ongota *ʔabba* F, FB+, *baaye ~ baai* F, *ʔaabo* MF, MZ+ [Fleming 2002a]; **PROTO-OMOTIC** *abaa* **F**, Kafa *ábo* F [Fleming 2003], Galila (Ari) *baabo ~ baabi* F, FB, MZH [Fleming 2003, Haberland & Lamberti 1988], Mao *báábê* MF, FF, *áábê* MB [Fleming 2003], Janjero (Yemsa) *aba* F, *apo* FF, MF [Haberland & Lamberti 1988, Fleming 2003], Aḍikas (Dizi) *bábuz* H [Fleming 2003], Basketo *baba ~ baaba ~ baabe* F, FB, MZH, *abbi* MB [Fleming 2003], Mocha *abbo* F in-law [Haberland & Lamberti 1988], Zayse *awaa* F [Haberland & Lamberti 1988], Koyra *abaa* F [Haberland & Lamberti 1988]; **PROTO-CUSHITIC** *a(a)b-* **F, paterfamilias** [Haberland & Lamberti 1988], **Proto-Central Cushitic** *ʔab-* **F** [Starostin 2004], Qemant *abaa* F [Starostin 2004], Bilin *abba* F [Starostin 2004]; **Proto-Southern Cushitic** *aba,ʔab-* **F** [Ehret 1980, Starostin 2004], Maʔa *aba* F [Haberland & Lamberti 1988], Asa *aba, baba* (ad.) F [Merker 1910, Haberland & Lamberti 1988, Fleming 1969], Burunge *aabba* F, FB, MZH *abbuya* MB [Haberland & Lamberti 1988]; **Proto-Eastern Cushitic** *ʔab-, aabba, baabó* **F** [Blažek 2002], Hadiyya *aabba* F, *abbaayyo* B [Blažek 2002], Gawwada *aappa* F, *apuya* FB [Haberland & Lamberti 1988], Saho *abba* F [Starostin 2004], Afar *aabba* F, *abu* MB [Haberland & Lamberti 1988], Rendille *aba* F [Blažek 2002], Beja *baaba* F [Blažek 2002], Dasenech *baaba* F [Blažek 2002], Dahalo *ɓáaɓa* F [Blažek 2002], Bayso *aabo ~ abo* F, FB *ab-abbo* GdF, old man, *abbi* B, *abba* Z [Haberland & Lamberti 1988], Arbore *abba* F, *aw* uncle [Haberland & Lamberti 1988], Gidole *abbo* MB, ZCh [Haberland & Lamberti 1988], D'i *aappa* F, FB, MZH, FZH, *apa* MB [Haberland & Lamberti 1988], Mossiya *aappa* F, FB, MZH, FZH, *apo* MB [Haberland & Lamberti 1988], Sidamo *abbo* MB [Haberland & Lamberti 1988], Gedeo *appa* F [Haberland & Lamberti 1988], Burji *appa* F [Starostin 2004], Konso *apa, apo* F, FB, MZH, *abuya* MB [Hallpike 1972], Somali *aabbe* F, *baabbe* (ad.) old man, *abboow* B, *abbaayo* Z *ab-ti* MB [Haberland & Lamberti 1988, Lewis 1994], Oromo *abbaʔ* F, *abatiyuʔ* GdF, *obbol-eessa* B, *obbol-eetti'* Z, *abbiyu'* F in-law [Bieber 1923, Huntingford 1955, Haberland & Lamberti 1988]; **Western Cushitic:** Dac'e *aawa* F, *aabbo* FF [Haberland & Lamberti 1988], Gamu *aawa* F [Haberland & Lamberti 1988], Wolayta *aawa* F, *aabbuwa* FB, MB [Haberland & Lamberti 1988], Zala *awaa* F [Haberland & Lamberti 1988], Gofa *awaa* F [Haberland & Lamberti 1988], Shinasha *aabbowa* FF, MF, *aabba* F in-law, *aawa* M in-law [Haberland & Lamberti 1988].

SUMERIAN *abba* **F, GdF, ancestor** [Halloran & Hamori 1999].

PROTO-EURASIATIC *ap(p)a* **F** [Greenberg 2001]: **ETRUSCAN** *appa* F [Ryan 2000]; **PROTO-INDO-HITTITE** *paH-téér* **F**, [Wordick 1970], *papa* **F**; **Anatolian:** Palaic *paapaš* F [Greenberg 2001], **Indo-European:** ***Tocharian:*** Tocharian A *paacar* F, *appakke paatar* FB [Wordick 1970], Tocharian B *paacer* F [Wordick 1970], ***Italic:*** Latin *pater* (ref.), *pappa* (ad.) F, *patruus* FB [Wordick 1970], Osque *patir* F [Wordick 1970], ***Armenian hayr*** F *yoray* FB, MH [Wordick 1970], ***Proto-Germanic fader*** **F** [Wordick 1970], Gotic *fadar* F [Wordick 1970], Old Norse *faðir* F [Wordick 1970], Icelandic *fathir* F [Morgan 1871], Norwegian *fader* F [Morgan 1871], Swedish *fader* F [Morgan 1871], Danish *fader* F [Morgan 1871], Anglo-Saxon (Old English) *fæder* F, *fædera* FB, *faðu* FZ [Wordick 1970, Schwimmer 1997], Old Frisian *fader* F, *fedria* FB [Wordick 1970], Middle Dutch *vāder* F, *vedder* FB [Starostin 2004], Dutch *vader* F [Morgan 1871], Old Franconian *fader* F [Starostin 2004], Middle Low German *vāder* F, *vedere* FB [Starostin 2004], Old High German *fater* F, *fetiro* FB, FBS [Wordick 1970], ***Celtic:*** Old Irish *athir* F [Wordick 1970], Gaulish *ater* F [McBain 1982], ***Greek:*** Attic *patēr* F, *páppa* F, *pátrōs* FB [Greenberg 2001, Wordick 1970]; ***Baltic:*** Lituanian *strùjus* FB, MZH [Wordick 1970], ***Common Slavic stryĭ*** FB [Friedrich 1966], Bulgarian *striko* FB, *pastrok* MH [Wordick 1970], ***Armenian hayr*** F, *yoray* FB, MH [Wordick 1970], ***Proto-Indo-Iranian baba, pitr*** **F: *Iranian:*** Avestan *pitar* F, *tūiryās* FB [Wordick 1970], Zend *pitar* F, *tūiria* [Hovelacque 1869], Old Persian *pitar* F [Wordick 1970], Farsi *pedar, pidar* F, *baba* F [Morgan 1871, Fleming 1954], Tajik *baba ~ bawa ~ baab* F, *bâbâ* ancestor [Schurmann 1962], Ossetic *fyd* F [Wordick 1970], Pashto *aba ~ bâbkû ~ bâbû* F, elder, *bābā* GdF [Schurmann 1962, Kabir & Akbar 1999], Baluchi *pitar* F [Elfenbein 1966], Hazara (Dai Kundi) *bâbá* F [Schurmann 1962], Hazara (Besud) *bâbá* F, *âbá* M [Bacon 1951, Schurmann 1962], Jaghuri *âbai* F [Bacon 1951, Schurmann 1962], Kurdish (Rowanduz) *bap* F, *bapir* GdF [Leach 1940], Afghan Persian *pedar* F [Nawata 1981], ***Proto-Indic baba, pitr̥*** **F** [Strand 2003], Sanskrit *pitā ~ pitar, baba* F, *pitr̥ruyās* FB [Wordick 1970, Morgan 1871], Prakrit *bappa* F, *pittiya* FB [Turner 1962], Romany *bap* F [Turner 1962], Sinhalese *appa* F (borr. fr. Dravid.?) *bāppa* FB–, *loku appa* FB+ [Trautmann 1981], Vedda *kudduappa* FB+, *loku appa* FB– [Seligman 1911], Bashkarik *bāb* F, *piʎi* FB [Turner 1962], Maia *pichii* FB [Turner 1962], Torwali *piẓii* FB [Turner 1962], Khow'ar *bap* GdF [Strand 2003], Dameli *bāp* F, *pítrī* FB [Turner 1962], Pashai *baba* F [Turner 1962], Phalura *bapu* F, *pítrī ~ baba* FB [Turner 1962], Shina (Gilgiti) *babu* F, *pici* FB [Turner 1962], Kashmiri *bab* F, *pitri ~ petar* FB [Turner 1962], Açharêtâ *bâbu* F, *pitr'i* FB [Strand 2003], Kol *bābā* HF [Griffith 1946], Pali *pitā* F [Karve 1953], Rajastani *bāpū ~ bāp* F, *bābā* FF [Karve 1953], Marathi *ba ~ bap ~ bappa* F [Morgan 1871, Turner 1962, Trautmann 1981], Konkani *bap-pusu* F, *bappa* FB – [Turner 1962], Sindhi *bap ~ bābo* F, FB+ [Karve 1953], Lahnda *bapu* F, *patrīya* FB, *pitrer* FBS [Turner 1962], Punjabi *bap ~ babhā* F [Turner 1962, Karve 1953], Gujarati *bāpu ~ bāpā* F [Turner 1962, Trautmann 1981], Bhils (Bhili) *bah ~ bahko* F [Naik 1956, Nath 1960], Hindi *pităjì ~ bap* F, *pit(ı)yā* FB, *bābā* FF [Turner 1962, Trautmann 1981], Urdu *bap* F [Lyon s.d.], Kumauni *bāpu* F [Turner 1962], Pahari (Bhalesi) *bap ~ bābā* F, *pitla* FB [Turner 1962, Karve 1953], Nepali *bāp ~ bābā* F [Turner 1962, Karve 1953], Maithili *bap ~ bappa* F, *pitti* FB [Turner 1962], Oriya *bapa* F [Turner 1962, Karve 1953], Bengali *bap ~ pita* F, *bab* FB+ [Turner 1962, Morgan 1871], Bihari *bāpa ~ pitā* F, *bābā* FF [Karve 1953], Assamese *bab ~ ap* F [Turner 1962, Karve 1953], Chitrapur Saraswat *bap-usu* F [Trautmann 1981], ***Nuristani:*** Vä *bâba* B [Strand 2003], Ames *bâba* B [Strand 2003], Nisei *bâba* B [Strand 2003], Kâta *vov* GdF, *vâ'i* GdM [Strand 2003], SaNu *bâba* B [Strand 2003], Kom *vov* GdF, *vâ'i* GdM [Strand 2003], Khow *bap* GdF [Strand 2003], Supu-Vari *vâ* GdF, *av'a* B [Strand 2003], uSüt-vare *vâv* GdF, *bab* B [Strand 2003], Kal'aSa *w'awa* GdF, *awa* GdM, *b'aya* B, *b'aba* Z [Strand 2003]; **PROTO-URALIC-YUKAGHIR** *appe̱* **F in-law** [Szíj 1998], **Tundra Yukaghir** *paba, abuja, abui* **Z+** [Jochelson 1926), **Uralic:** Hungarian *apa* F, *ap-ó* very old man [Hamori & Halloran 1999, Chong 2003], Ugor Vogul *apa* GdF [Hamori & Halloran 1999, Chong 2003], Votiak *apsi* nephew [Smirnov 1898], Erze *bat'aj* B+, uncle [Smirnov 1898], Cheremys *aba* M [Szíj 1998, Smirnov 1898], Lapp *oab'ba* Z [Goodenough 1964], Finnish *appi* F in-law [Chong 2003]; **PROTO-ALTAIC** ***aba*** **F, Proto-Mongolian** ***ab(u)*** **F** [Starostin 2003], Middle Mongolian *abaqa ~ abaya* F [Starostin 2003], Moghol *baabá* F, *bâbu* GdF [Schurmann 1962], Monguor *aaba ~ awa* F [Starostin 2003], Kalmuk *aaba ~ aab* F (honorific), *abaga* FB [Aberle 1953, Vreeland 1953], Buriat *aba ~ bábai* F, *abaga ~ abgaj* FB [Shirokogoroff 1924, Starostin 2003, Krader 1953], Kalkha *aab* (honorific) ~ *av* F, *abaga ~ avga* FB [Vreeland 1953], Ordos *awa* F, *awaɢa* FB [Starostin 2003], Chahar *aab* (honorific) F, *abaga* FB [Vreeland 1953], Dongxian *aba ~ apa ~ avi* F [Starostin 2003], Baoan *aabe ~ abo* F [Starostin 2003], Shary Yoghur *aba ~ awi* F [Starostin 2003], **Tungusic**: Negidal *apa* FB+, MB+, GdF [Starostin 2004], Nanai *papa ~ fafa* FB+, MB+, *apa* GdF [Starostin 2004], **Proto-Turkic** ***apa*** **F, M** [Starostin 2003], Old Turkic *apa* ancestor, M, Z+, aunt [Starostin 2003], Middle Turkic *apa* Z+ [Starostin 2003], Osmanli *baba* F, ancestor [Schurmann 1962], Turkish *aba ~ baba, peder* (from Persian) F, *aba* (Ank) M, Z+, aunt [Starostin 2003, Wordick 1970, Cuisenier 1964], Orkhon Turkish *apa* GdF [Krader 1953], Turkmen *aba* F, *apa ~ afa* M, Z+, aunt [Starostin 2003], Salar *aba* F [Starostin 2003], Sary-Yughur *awa* F [Starostin 2003], Uighur *apa* M, Z+, aunt [Starostin 2003], Uzbek *baba* F, *baba* MF, FF, *olpa* M, Z+, aunt [Starostin 2003], Bashkir *apa* F, *apa* M, Z+, aunt [Starostin 2003], Kumyk *abaj ~ apaj* M, Z+, aunt [Starostin 2003], Balkar *appa ~ aba* F, *aba* M, Z+, aunt [Starostin 2003], Tatar *aba* F, *apa* M, Z+, aunt [Starostin 2003], Noghai *aba* M, Z+, aunt [Starostin 2003], Karakalpak *apa* M, Z+, aunt [Starostin 2003], Kazakh *apa* M, Z+, aunt [Starostin 2003], Kirghiz *àba* F, *apa* M, Z+, aunt [Starostin 2003], Azeri dial. *aba* F [Starostin 2003], Yakut (Kolyma) *abaga* FB+, *äbä* FM, MM [Jochelson 1933], Altai *aba* F, *abune* M, Z+, aunt [Potapov & Levin 1964, Starostin 2003], Shor *abice* M, Z+, aunt [Starostin 2003], Tuva-Tofalar *ava* F, *ava* (Tuv), *aba* (Tof) M, Z+, aunt [Starostin 2003], Karakhanid *apa* ancestor [Starostin 2003], Khakassian *aba* F [Starostin 2003], Oyrat *aba* F, 'bear' [Starostin 2004], Chuvash *oba* 'bear' [Starostin 2004]; **JAPANESE-KOREAN-AINU: Korean** ***àpí*** **F** [Starostin 2004], Middle Korean *àpí* F [Starostin 2004], Modern Korean *abəži* (honorific), *appa* (childish), *abŏm* (dim.) F, *oppa* B+ [Lee & Harvey 1973]; **ESKIMO-ALEUT: Proto-Eskimo** ***ap(p)a*** **GdF** [Greenberg 2001], Sirenik *apa* GdF [Greenberg 2001], Alutiiq *apa* GdF [Greenberg 2001], Central Alaskan Yupik *apa* GdF [Greenberg 2001], North Alaskan Inuit *aapa* F [Greenberg 2001], West Canadian Inuit *aappak* F [Greenberg 2001], Kangianerm *åpåŋ* F [Rasmussen 1941], Nunamiut *apa* F, *apiak* B+ (ego m.) [Pospisil 1964], Inupiak *aapaŋa* F, *aapiaŋa* B+ [Heinrich 1960], **Aleut** ***patúγíq*** **FB,** ***pátuq*** **FF** [Geoghegan 1834]; **CHUKCHI-KAMCHADAL:** Chukchi *e'pi* (ad.) F, *apainin* GdF, *epiqai* GdM (children terms from *e'pi* 'father') [Bogoras 1904-1909], Paren Koryak *apa* F [Steller 1774, Jochelson 1908], Reindeer Koryak *enpic* F, *apapel* FF, MF, FFB, MMB [Jochelson 1908], Kamenskoye Koryak *apa* FF, MF, MMB, FFB [Jochelson 1908], Kamchadal *apač* F [Greenberg 2001]; **GILYAK** *apa* F in-law, WF, MB [Sternberg 1933].

PROTO-KARTVELIAN ***ṗ aṗ -*** **GdF** [Starostin 2004]: Georgian *ṗ aṗ -*, *ṗ aṗ a* GdF [Starostin 2004], Megrelian *ṗ aṗ u* GdF [Starostin 2004], Laz *obu* F, *ṗ aṗ ul-*, *ṗ aṗ u* GdF [Starostin 2004].

PROTO-NORTH CAUCASIAN ʔŏbVV(jV) ***F babajV*** **F, GdF,** ***babV*** **M** [Starostin 2003]: **Proto-Tsezian** ***ʔɔbu*** **F** [Starostin 2003], Tsezi *obiju ~ babju* F [Starostin 2003], Ginukh *obu* F [Starostin 2003], Khvarshi *obu* F [Starostin 2003], Inkhokvari *obu* F [Starostin 2003], Bezhta *abo* F [Starostin 2003], Gunzib *ɔbu* F [Starostin 2003], **Proto-Avaroandian** ***babV*** **M** [Starostin 2003], Avar *baba* mummy [Starostin 2003], Andi *baba* mummy [Starostin 2003], Akhvakh *baba* mummy [Starostin 2003], Chamalal *bab* mummy [Starostin 2003], Lak *puu* F, *baba* M [Starostin 2003], **Proto-Nakh** ***babV*** **FB** [Starostin 2003], Batsbi *babo* GdF [Starostin 2003], **Proto-Dargwa** ***ʔaba*** **F,** ***baba-j*** **M** [Starostin 2003], Chiragh *aba* F *babaj* M [Starostin 2003], Akusha *aba* F [Starostin 2003], **Proto-Lezghian** ***ʔappaj*** **F,** ***babaj*** **F, GdF** ***pap(a)*** **M** [Starostin 2003], Lezghi *buba* F, *appaj* F in-law [Starostin 2003], Udi *apper*, *baba* F [Starostin 2003], Tabasaran *aba* F (litt.) *aba* GdF, *bab* GdM [Starostin 2003], Kryz *bäj* F [Starostin 2003], Agul *baw* M [Starostin 2003], Rutul *baba* GdF, *babaj* GdM [Starostin 2003], Budukh *baba* GdF, *bab* M in law [Starostin 2003], Archi *ab-ttu ~ aba* F, *buwa* M [Starostin 2003], Khinalug *aba* GdF [Starostin 2003], **Proto-Abkhazo-Adyghe** ***(a)pp'ə*** **F,** ***baba*** **GdF** [Starostin 2003], Abkhaz *ab* F *baba* GdF [Starostin 2003], Abaza *aba* F [Starostin 2003].

ELAMO-DRAVIDIAN: PROTO-DRAVIDIAN *appa* **F: Northwest:** Brahui *aba* F *abba* GdF [Emeneau 1955, Starostin 2003]; **Dravidian Proper:** ***Northeast*****:** Kurukh *abbā ~ em-bas* F, *ba* (ad.) F [Trautmann 1981, Emeneau 1955], Malto *abba* F [Starostin 2003, Emeneau 1955], ***Central: Proto-Telugu app-*** **F** [Starostin 2003], Telugu *appa* F, M, Z + [Starostin 2003], Mappila *uppa* F [Starostin 2003], ***Proto-Kolami-Gadba ap-*** **kind of relative** [Starostin 2003], Kolami *appa* FZ [Emeneau 1955, Starostin 2003, Trautmann 1981], Naikri *appo ~ appok* WB – [Starostin 2003], ***Proto-Kui-Kuvi aap-*** **F** [Starostin 2003], Kui (Kondh) *aba* F, GdF, ancestor, elder, *āpi* Z – [Trautmann 1981, Emeneau 1955], Kuwi *appa* GdM [Starostin 2003], ***Proto-Gondi aap-, tap-*** **F** [Starostin 2003], Hill Maria Gondi *tāppe* (ref.) F, *pepi* FB + [Trautmann 1981, Grigson 1949], Betul Gondi *aapoor al* F [Starostin 2004], Maria Gondi *tape* F [Starostin 2004], Koya Gondi *tappe* F [Starostin 2004], Konda *aposi* his F [Starostin 2003], ***South:*** Tulu *appā-ji* F, *doḍḍ-appā-ji* FB +, *cikk-apā-ji* FB –, *appe* M [Trautmann 1981, Karve 1953], Tamil *abba ~ appa ~ appan ~ appu ~ takk-apan* F, *periappa* FB +, *cinappa* FB – [Trautmann 1981, Emeneau 1955, Starostin 2003, Beck 1972, Karve 1953], Malayalam, Mullukurumba *appan* F, *pey-appan* FB +, *eay-appan* FB –, *muth-appan* GdF [Starostin 2003, Trautmann 1981, Karve 1953], Kannada *appa* F, *abbe* M [Starostin 2003, Srinivas 1942, Karve 1953], Kodagu *apë*, *appe* F *appa* B + [Trautmann 1981, Starostin 2003].

AUSTRIC: MIAO-YAO: Hainan Miao *fâ* F [Wang Hsing-Ju 1948]; **AUSTROASIATIC: Munda:** Northern Munda *apu* F [Parkin 1985], Mundari *abā*, *apu* F [Karve 1953], Santali *apa ~ bābā ~ apun* F [Karve 1953, Culshaw 1949], Southern Munda *ba* F [Parkin 1985]; **Mon-Khmer:** Standard Khasi *kpa* F, FB, MZH [Parkin 1988], Plateau Khasi *kpa* (ref.), *ipa* (ad.) F, *pa san* FB +, *pa khynnah* FB –, *bah* B + [Ehrenfels 1953], War Khasi *kpa* (ref.), *ipa* (ad.) F, *pa san* FB +, *pa khynnah* FB – [Ehrenfels 1953], Pnar *u pa* (ref.), *paiu* (ad.) F, *pa san* FB +, *pa ruit* FB –, *papun* MF [Ehrenfels 1953], War Jaintia *u pa* F, *pa* MZH, *pa kong* FB +, *pajiang* FB – [Ehrenfels 1953], Annamese *bắc* FB+, *bà* GdM [Benedict 1947, Spencer 1945], So *piá* F [Kania & Kania 1979], **Proto-Bahnaric** ***baʔ ~ baap*** **F** [Starostin 2003], Chrau *baap* F [Starostin 2003], Stieng *baap* F [Starostin 2003], Mnong Rlam *băp* F [Lafont 1967], Mnong-Gar *baap* F *baap êet* FB – [Condominas 1960], Lave *bəəʔ* F [Starostin 2003], Brao *bəəʔ* F [Starostin 2003], Jaru *bʏʏp* F [Starostin 2003], Nhaheung *bii ~ bʏʏp* F [Starostin 2003], Bahnar *bă* F Guilleminet 1952, Rengao *baʔ* F [Starostin 2003], Jeh *baaʔ* F [Starostin 2003], Sedang *pa* F, FB [Starostin 2003], Hre *baʔ* F [Starostin 2003], Didra *baʔ* F [Starostin 2003], Tariang *bəəp* F [Starostin 2003], Kaseng *byəp* F [Starostin 2003], Semai *abog'n* F [Schebesta 1954], Kenta *bä* B – [Schebesta 1954], Sakai *bah* FB – [Evans 1937], **Daic:** Thai (Lanathai) *pʰau ~ pau* F [Kingshill 1960], Southern Thai *po̱o̱* F, *pā* MZ, FZ [Bernatzik 1947], Lao *po̱o̱* F, *pā* MZ, FZ, *āpéʏ* FBW, MBW [Bernatzik 1947]; **PROTO-AUSTRONESIAN** ***apu*** **GdPt, GdCh, Atayalic:** Atayal *yaba* F [Mabuchi 1960, Ruey 1950], Sedeq *bubu* M [Mabuchi 1960]; **Tsouic:** Tsou *ba'i* GdM [Mabuchi 1960]; **Paiwanic:** Ami *aput* WZH [Mabuchi 1960]; **Malayo-Polynesian:** ***Western Malayo-Polynesian:*** Agta *apo* GdPt, GdCh [Headland 1987], Ifuago *apo* GdPt, GdCh [Barton 1919], Yami *apu* GdCh [Mabuchi 1960], Eastern Subanun *g̃apu'* GdPt, GdCh [Frake 1960], West Java Baduj *bapa* F [Berthe 1965], Mindanao *bapa* F [Kroeber 1919], Hanunoo (Philippines) *bapaq* FB, MZH, *pūpuh* GdGdGdPt, GdGdGdCh [Conklin 1964], Northern Luzon Sagada Igorots *apo* (ad. & ref.) GdCh [Eggan 1960], Tausug *bapa'* F, MB, *babu'* F, MZ, *apu'* (ad.) GdPt, *appa'* titled person [Jainal & *al.* 1971], Cebuano *pápa* (occas. ad.) F, uncle, *apuhan* GdPt, *apu* GdCh [Hart 1980], Tawi-Tawi Bajaw *bapa* PtB, *bapu* PtZ [Nimmo 1965], Toradja (Celebes) *papa* F, FB [Adriani 1951], Makassarese *bapa* F [Chabot

1950], Land Dayak *bapa* F [Kennedy 1955], Javanese *bapaq* F [Koentjaraningrat 1960], Bali *bapa* F, FB, MB [Covarrubias 1938], South Batak *ompu* GdPt, GdCh [Loeb 1933], Iban *apai* F, FB, MB [Freeman 1960], Minangkabau *bapa* FB, MB, *abang* B + [Winstedt 1950], Old Malay *bapa* F, *abang* B + [Kennedy 1955], Malay *bapa* (ref. & ad.) F [Codrington 1885, Kroeber 1919], Rhade *aprong* FB +, MZ +, FZ + [Hautecloque-Howe 1980]; ***Central Eastern Malayo-Polynesian:*** Western Keo (Flores) *ebu* GdPt, GdCh, *bapa* FZH, MZH [Forth 1994], Eastern Keo *bapa* F, FB, FZH, MZH, *embu* GdPt, GdCh [Forth 1994], Sela Lejo *bapa ta'a ka'e* FB +, *ebu* GdPt, GdCh [Forth 1994], Waima'a*´bà* F [Capell 1944], Yambdena *abe* FZ [Guermonprez 1998], Kodi *bapa* F, FB, MZH, *ămbu* GdPt, GdCh [Fischer 1958], Weyewa *ubu* GdF, GdCh [Fischer 1958], Lamboya *ubu* GdF, GdCh [Fischer 1958], Wanukaka *ubu* GdF, GdCh [Fischer 1958], Anakalangu *ăpu* GdM [Fischer 1958], Mamboru *ăpu* GdM, *mbapa* MB [Fischer 1958], East Sumbanese *apu* GdM, *papaha* W [Fischer 1958, Forth 1990], Ndao *apu* GdCh [Forth 1988]; ***Oceanic:*** New Ireland Limalaua *papa* B + [Chinnery 1931], New Ireland Letatan *papa* B + [Chinnery 1931], New Ireland Lesu *papa* BW (ego m.), ZH (ego f.) [Powdermaker 1933], Manus (Admiralty Isl) *papu* F, FB –, B+ [Mead 1934], Ario Usiai *papu* FF [Mead 1934], Bipi *pabu* GdF, GdCh [Mead 1934], Mbambatana (Choiseul Salomon) *papa* GdF, MB [Capell 1943], Vanikoro (Santa Cruz) *papa* M, MBW, FZ [Rivers 1914], Ajie *pēva* (ad.) F [Leenhardt 1946], Arha *pēva* (ad.) F [Leenhardt 1946], Boewe *pēva* (ad.) F, *paparè* FZCh [Leenhardt 1946], Sirhe *pēva* (ad.) F [Leenhardt 1946], Neku *pēva* (ad.) F, *papare* F, S [Leenhardt 1946], Ciri *pava* (ad.) F [Leenhardt 1946], Anesu *apā* (ad.) F [Leenhardt 1946], Aragure *apā* (ad.) F [Leenhardt 1946], Kapone *poepoe* GdF [Leenhardt 1946], Camuki *apabun* GdS [Leenhardt 1946], Pinje *pagun* GdS [Leenhardt 1946], Poai *bagun* GdS [Leenhardt 1946], Nemi *pagun* GdS [Leenhardt 1946], Wamoang *vabun* GdS [Leenhardt 1946], Jawe *pagun* GdS [Leenhardt 1946], Nenema *pabu* GdS [Leenhardt 1946], Koumac *pabu* GdS [Leenhardt 1946], Nua *pebu* GdS [Leenhardt 1946], Bonde *pebu* GdS [Leenhardt 1946], Poapoa *pagun* GdS [Leenhardt 1946], Poamei *pagu* GdS [Leenhardt 1946], Moaveke *vabun* GdS [Leenhardt 1946], Moaeke *ivabun* GdS [Leenhardt 1946], Aveke *vabun* GdS [Leenhardt 1946], Aeke *vabun* GdS [Leenhardt 1946], Nengone *pa* (ref.)GdF, *abuaiene* GdS [Leenhardt 1946], Iwatenu *pa* (ref.)GdF, *abuaiene* GdS [Leenhardt 1946], De'u` *wa`wa* GdF *api* GdS [Leenhardt 1946], Min` *wa`wa* GdF, *apiwa* GdS [Leenhardt 1946], Aneityum *etpo* GdPt, *mapo* GdCh [Rivers 1914], Sa'a *wauwa* GdF, *pwapwa* GdM, *pwapwa* GdCh [Rivers 1914], Hiw *pupu* GdPt, GdCh [Rivers 1914], Mota (North New Hebrides) *pupua* GdPt, GdCh [Rivers 1914], North Efate (Lelepa) *papuua* GdF [Guiart 1964], Fidjian (Viti Levu) *vava* F, FB + [Capell & Lester 1945], Fidjian (Vanua Lava) *popo* GdPt, GdCh [Rivers 1914], Trobriand *tabu* GdPt, GdCh [Seligman 1910], Anuta *papa* (ad.) F [Marck 1996], Taumakua *opa* F, FB, *apu* GdPt, GdCh [Marck 1996], Pileni *opa* F, FB, *apu*, *pu* FZ [Rivers 1914], Tikopia *pa*, *paa* F (ad.), F in L *pu* GdPt [Rivers 1914, Marck 1996], Rangiroa (Tuamotu) *paapaa* F, FB, MB [Marck 1996], Rarotonga *paapaa* F [Marck 1996], Tahitian *paa* F (ad.) [Marck 1996], Tongareva *papa* M [Marck 1996], Murray Island *babi* F [Codrington 1885],

PROTO-YENISEIAN ***ob* F, *puʔ-b* S, *puʔ-n* D** [Starostin & Ruhlen 1994], Ket *oop* (pl. *obaŋ*) F, *hiʔp* S, *huʔn* D [Starostin & Ruhlen 1994], Yug *op* (pl. *obeeŋ*) F, *fiʔp* S, *fuʔn* D [Starostin & Ruhlen 1994], Kottish *oop* (pl. *oopan* ~ *oopaŋ*) ~ *ob* F, *fup* S, *fun* D [Starostin & Ruhlen 1994], Arin *b́ap* ~ *iṕa* ~ *ajap* F [Starostin & Ruhlen 1994], Pumpokol *ab* F [Starostin & Ruhlen 1994].

PROTO-BURUSHASKI ***´pi* GdF** [Starostin 2004], Hunza *api* GdM, *bapo* GdF [Parkin 1987], Nagar *´pi* GdF [Starostin 2004], Werchikwar *pe* ~ *bap* GdPt [Parkin 1987].

NAHALI *aba* ~ *ba* **F** (borr. from Munda?) [Starostin & Ruhlen 1994].

PROTO-SINO-TIBETAN *paH* [Starostin 2003], **SINITIC:** Archaic Chinese *pa* (ad.) F [Benedict 1942], Modern mandarin *baba* (ad.) F F (Chen, pers. com.)**TIBETO-KAREN** *pa* **F** [Benedict 1941], **Karen:** Pao (Pwo?) *pä* F [Morgan 1871], Taungthu *p'a* F, *p'u* GdF, *p'i* GdM [Benedict 1941], Miri (Northern Taungthu) *(a-) bu* F, FB [Benedict 1941], Sgaw *pä* F, *p'a-ti* FBn *p'u* GdF, *p'i* GdM [Morgan 1871, Benedict 1941], Karen *pah* ~ *pa* F, *pō* GdF [Morgan 1871, Bernatzik 1947], **Tibetic**: Newari *bā*, *abu* ~ *bau* ~ *baub* ~ *baubju* F, *tabā* FB + [Toffin 1975], Dhimal *(a-) ba* F [Benedict 1941], Lepcha *a-bo* F [Gorer 1938], Dafla *(a-) bo* F [Benedict 1941], Tamang *ava* ~ *ābā* F, *abtheba* FB + [Fürer-Haimendorf 1955-56], Gurung *pa* ~ *pha* F, FB [Pignède 1966], Tibetan *pha* ~ *a-pha* F, *yab* (respectful) F, *p*^{h}*u* B + [Allen 1976, Starostin 2003, Benedict 1941], East Tibetan *ap'a* F [Woodville Rockhill 1893], Balti (Western Tibetan) *bawa* F, *apo* GdF, *api* GdM [Benedict 1941], Vayu *u-pu* F [Benedict 1941], Kanauri *(a-)pa* ~ *bo-ba* ~ *bonn* F, *a-pats* ~ *bo-bats* FB, *a-pi* MM [Benedict 1941], Byangsi *ba* F, *babu* FB + [Benedict 1941, Allen 1975], Thulung *pap* F, *wa* B +, Z + [Starostin 2003], Bahing *a-po* F, *po-po* FB,*ya-wa* B +, Z + [Benedict 1941], Dumi *pa* F [Starostin 2003], Khaling *'pa'p* F, *'wa* B +, Z + [Starostin 2003], Tsumje *ava* F [Allen 1976], Kha(u)mbu *ava* F [Allen 1976], Kulung *pa* F, *papa* foref.ather, *p*^{h}*əpa* GdF [Starostin 2003], Limbu *paa* F, *p'u* B + [Starostin 2003, Benedict 1941], Yamphu *pa* F, *waawa* B + [Starostin 2003], **Baric:** Bodo *-pa* ~ *(a-)p'a* F, *(a-) bou* GdF, *(a-) boi* GdM [Benedict 1941, Starostin 2003], Garo *apa* F, *abi* Z + [Nakane 1967], Chang *(a-)po* F, FB, MZH, *(a-)pi* GdPt [Benedict 1941], **Burmic:** Meithei *(i-)pa* F, *(i-)pu* GdF [Benedict 1941], Mikir *pō* F, *p*^{h}*u* GdF [Stack 1908], Lhota Naga *opo* F, *oporamo* FB +, MZH, *oporo* FB – [Benedict 1941, Mills 1922], Ao Naga *oba* F [Benedict 1941], Tangkhul *(a-) va* F, *(a-) wo* GdF [Benedict 1941], Ao (Chongli) *(o-) ba* (ad.) F, *(o-)pu* (ad.)

GdF [Benedict 1941], Ao (Changki) *(a-) ba* (ad.) F [Benedict 1941], Ntenyi *(a-)pa* F, GdF [Benedict 1941], Anyo *(a-)pa* F [Benedict 1941], Angami Naga *'po* F, *a-po* (ref.) FB +, *a-pvu* (ad.) FB + [Benedict 1941, Hutton 1921], Sema Naga *apu* F, *apuza* FM, MF, MM, *apëu* B – [Benedict 1941, Ruheman 1948], Thado *hepa* F, *hepu* MB [Ruheman 1948], Aimol *apa* F, *kapu* MB [Ruheman 1948], Purum *kapa* F, *kapu* MB [Ruheman 1948], Lushai *pa* F, FB, *pa* GdF, *pu* MB, *pi* GdM [Benedict 1941, Ruheman 1948, Parry 1976], Chawte *pa* F, *apu* MB [Ruheman 1948], Vaiphei *pa* F, *pu* MB [Ruheman 1948], Haka *ba* F, *pak* uncle + [Dylan 1999], Lakher *ipa* (ad.), *paw* (ref.) F, FB, MZH, *papa* GdF, *papu* (ad.) MB, FZH [Parry 1932], Sho *a-po* F, *a-pŏ* GdF, GdGdF, *a-pu* MB + [Benedict 1941], Laiyo *pa* F, *papa* FF [Benedict 1941], Chinbok *pa* F [Benedict 1941], Kachin Jinghpaw *wa* F, FB, MZH, *p^hu* B + [Leach 1972], Burmese *a-p^ha* ~ *a-bă'* ~ *a-pă* F [Starostin 2003, Morgan 1871], Liang-Shan Lolo *abə* F, *apu* FF [Lin 1947], Lolo *ā-po* F [Credner 1935], Lolo (XVIIth cent.) *popo* FB – [Kryukov 1998], Talusu *abu* F, *abula* FB +, *abuya* FB – [Kryukov 1998], Lisu *ipa* ~ *baba* F, *aupa* FB +, *apa* FF [Kryukov 1998, Bernatzik 1947], Akha *âbō̱* FF, *ābū́* D, *ăpí* FM [Bernatzik 1947], Lahuna *o̱pā́* F, *āpā* MB, *ăpí* FM [Bernatzik 1947], Lahusi *āpā́* F, *āpū* GdF, *āpī́* GdM [Bernatzik 1947].

NA-DENE: CONTINENTAL NA-DENE: Kaska *pa* WZ (ego m.), MBD [Hoijer 1956], Sinkyone *a-bak* FF [Hoijer 1956], Hare *é-pa-yan* GdCh 'little father'? [Hoijer 1956], Sekani *abba* my F [Hoijer 1956], Carrier *a'pa* my F [Goldman 1941].

AMERIND: ALMOSAN-KERESIOUAN: Almosan: ***Kutenai** pa'pa* GdPt, GdCh *pa* BD, *påt'*BS [Boas 1919], ***Algic:*** Yurok *(ne)pa'* my B (ego m.) [Kroeber 1917, Gifford 1922], Ojibwa *nin baba* F [Trautmann & Barnes 1998], ***Mosan: Salish:*** Puget Sound Salish *bad* F [Ballard 1935], Twana *ba'd* F [Elmendorf 1946], Nass River *päp* (ad.) F [Sapir 1920], **Keresiouan: *Proto-Keresan papa* GdPt, GdCh**, Zia *sa'papa* MM, FM, DD (ego m.), *s'apapa* FF, MF, SS (ego f.) [Hawley 1950], Cochiti *baba* MM, FM, DD (ego m.), FF, MF, SS (ego f.) [Hawley 1950], Santa Ana *saβa'βa* MM, FM, DD (ego m.), *saβa'βa* FF, MF, SS (ego f.) [Hawley 1950], Santo Domingo *s'á papa* MM, FM, DD (ego m.), FF, MF, SS (ego f.) [Hawley 1950], Laguna *pápa* FF, MF, SS [Hawley 1950], Acoma *s'apapa* MM, FM, DD (ego m.), *s'a pápa* FF, MF, SS (ego f.) [Hawley 1950], ***Proto-Caddoan pat* GdF** [Taylor 1963], Pawnee *atípat* my GdF [Taylor 1963], Arikara *atípa* my GdF [Taylor 1963], Caddoan *ibát* my GdF [Taylor 1963]; **PROTO-PENUTIAN *apa* F, GdF, Canada:** Tsimshian *a'b(u)* (ref. & ad.) ~ *pāpī* my F, *āb* men of the father's clan (ego f.) [Mayer-Durlach 1928], **Oregon:** Takelma *ob* B +, *wā* B –, *k'aba* S [Sapir 1907], **Plateau:** Klamath *babågip* GdGdPt [Aoki 1963], **Proto-Californian *be* B +** [Greenberg 1987], Patwin *ʔåpa* GdF [Broadbent], Northern Wintun (Shasta County) *hapa* F [Gifford 1922], Southeastern Wintun *ape* GdF, MB, MBS ancestors [Gifford 1922], Southwestern Wintun *ape* GdF, MB, MBS etc. [Gifford 1922], Northwestern Mountain Maidu *pa* MF [Gifford 1922], Northwestern Plains Maidu *pa* MF, DCh (ego m.) [Gifford 1922], Southern Maidu *opa* MF [Gifford 1922], Yaudanchi Yokuts *bap'* FM, *bapa* SCh (ego f.) [Kroeber 1917], Yawelmani Yokuts *bapa* FM, SCh (ego f.) [Gifford 1922], Tachi Yokuts *bapai* (ad.) M [Gifford 1922], Santa Cruz Costanoan *apnan* F [Gifford 1922], Santa Clara Costanoan *apa* F, *papa* GdF [Gifford 1922], Rumsien *apa* F *pap* GdF [Gifford 1922], Mutsun *apa* F, *papa* MGdF, *apapat* nephew [Gifford 1922], Southern Miwok *üpü* F, FB, MZH, *papa* GdF [Gifford 1922], Northern Miwok *üpü* F, FB, *papa* GdF [Gifford 1922], Plains Miwok *appa* F, *papa* GdF [Gifford 1922], Lake Miwok *api* F, *papa* GdF [Gifford 1922], Coast Miwok *api* F, *ppa* GdF [Gifford 1922], **New Mexico:** Zuñi *papa* B + [Schneider & Roberts 1956], Hopi, Hopi-Tewa *papa* ~ *píp'î* B + [Greenberg 1987, Dozier 1954], **Gulf:** Huchnom *ipe* MF, *ipauñ* FM [Gifford 1922], Wappo *bapa* FM, FB +W, *epa* B + [Gifford 1922], Muskogee (Creek) *pawa* MB [Swanton 1928], Koasati *apo* GdM, *aposi* FZ [Swanton 1928], Chitimacha *ʔaatipu* GdPt [Haas 1939], **Mexican:** Totonac *papa* GdF [Radin 1931], Mixe *ap-teit* F, *ap* FF, masc. elder, nephew, *ap-unc* GdS, nephew [De Angulo 1925, Radin 1931], Totontepec *ap* GdF, GdS [Beals 1945], Quintana *ap* ~ *apteit* GdF, *apunk* GdCh ego m. [Beals 1945], Ayutla *ap* GdCh, *apas* DD [Beals 1945], Sierra Popoluca *ʔapanaa* F [Kimball Romney 1967], Zoque *apaj* GdM, *aputa* GdPt, *paapo* FZ, *apu manac* Z, *apu han* [Radin 1931, La Grasserie 1898, Kimball Romney 1967], Huastec *pap* F, *yelam pap* FB + (ego f.), *tzutz pap* FB – (ego f.) [Radin 1931], Chontal *sapi* B +, *bepo* B – [Kimball Romney 1967], Maya *baal* WB, *abil* DCh (ego f.) [Eggan 1934, Radin 1925]; **PROTO-HOKAN *aba* FF, Northern:** Karok *ptatpa* stepPt [Greenberg 1987, Gifford 1922], Shasta *apo* B, FBS, *ʔapu* B + [Gifford 1922, Greenberg 1987], Achomawi *abun* FF, SCh (ego m.), *waba.ui* your B + [Gifford 1922], Atsugewi *apun* FF, SCh (ego m.), *pupa* B + [Gifford 1922], Lutuami *papakc* GdFB, BGdCh (ego m.) [Gifford 1922], Southeastern Pomo *imbat* FF [Gifford 1922], Central Pomo *bate* FF, FB + [Gifford 1922], Northern Pomo *aba* FF (ref.) [Gifford 1922], Southwestern Pomo *bebe*, *abe* F, *baban* FF, FB + [Gifford 1922], Southern Pomo *abatsin* FF, FB +, *apakin* S [Gifford 1922], **Washo:** Washo *baba* FF, SCh (ego m.) [Kroeber 1917], **Salinan-Chumash:** San Miguel *apeeu* ~ *pepeʔ* B [Greenberg 1987], San Antonio *peʔ* Z + [Greenberg 1987], Chumash Ynezeño *pe* B + [Gifford 1922], Esselen *abai* F [Gifford 1922], **Seri-Yuman:** Kamia *inpau* FF [Gifford 1922], Southern Diegueño *inpau* FF [Gifford 1922], Northern Diegueño *inipau* FF [Gifford 1922], Mohave *(n)apauk* FF [Kroeber 1917], Yuma *napau* FF [Gifford 1922], **Coahuiltecan** Coahuilteco *pam* S [Kimball Romney 1967], **Tequistlatecan** Tequistlatec *popá*, *papá* (ad.) F, *popá*, *papá* (ad.) GdF [Turner & Olmsted 1966]; **PROTO-CENTRAL AMERIND *pa* B + *pa* FZ** [Miller 1967], **Proto-Kiowa-Tanoan *papa* B+**, Kiowa *pāvi´'ə* (ad.) B +, B – (ego m)., *pabi* B + [Lowie 1923, Greenberg 1987], ***Proto-Tiwa pa'pa* B+** [Trager 1943], Taos *papa* B+, *popo* B +, *p^{ʔ}ōj* B – [De Angulo 1925, Trager 1943], Picuris *ʔap`a* B+ [Trager 1943], Isleta *papa* B +, *p^{ʔ}ai* B – [Trager 1943], Sandia *p'apa* B + [Trager 1943], San Ildefonso *pare* B + [Greenberg 1987], **Proto-Uto-Aztecan *pa* B, *papi* B +, *po* B –** [Miller 1967], Northern Paiute *pabi'i* B + *pahwa*

FZ [Kroeber 1917, Shimkin 1941], Western Mono *bav* B + *pahwa* FZ [Miller 1967, Gifford 1922], Battle Mountain Shoshone *apu* F [Ives 1998], Comanche *ap'* F, FB, MZH, *paβi* B + [Ives 1998], Kawaiisu *pahani* FZ, MBW [Kroeber 1917, Shimkin 1941], Southern Paiute *paha* FZ [Miller 1967], Kaibab Paiute *paa* FZ [Kroeber 1917], Tülatulabal *pači* B +, *pauwan* FZ [Kroeber 1917, Shimkin 1941], Kitanemuk *pat* B + [Gifford 1922], Serrano *pas* B +, *pa'* FZ [Miller 1967, Shimkin 1941], Luiseño *pash* B +, *pa-mai* FZ [Miller 1967, Shimkin 1941, Kroeber 1917], Uintah Ute *pā* ~ *pānhi* FZ [Kroeber 1917, Shimkin 1941], Cahuilla *pas* B +, *pa* FZ [Miller 1967, Shimkin 1941], Cupeño *pasma* B +, *pa'* FZ [Gifford 1922], Hopi *ʔi-páva* my B + [Miller 1967], Pima *paap* MF [Shimkin 1941], Tepecano *baba* MF [Shimkin 1941], Southern Tepehuan *baba* MF [Radin 1931, Miller 1967], Northern Tepehuan *baba* FF, SCh (ego m.) [Miller 1967], Tarahumara *bači* B + [Shimkin 1941], Yaqui *aba-či* B + [Shimkin 1941], Opata *pao* MF *baa* B +, *babo* FZ [Shimkin 1941, Radin 1931], Cora *(tiy)aóppa* F [Radin 1931], Papago *ba'p* MF, *ba* B + [Radin 1931, Shimkin 1941], Varohio *pa'či* B + [Shimkin 1941], **Oto-Manguean:** Otomi *bahtzi* S [Radin 1931]; **CHIBCHAN-PAEZAN: Chibchan:** Tarascan *papa* MB [Radin 1925], Yanomami *habɛ* (ad.) F, FB, MZH, *abawə* B +, *abami* Z + [Lizot 1971], Shiriana *aba* B + [Greenberg 1987], Matanawi *upi* B + [Greenberg 1987], Bari (Motilon) *abamana* M [Pinton 1965], Cuna *pap* F [Dyneley Prince 1912], Chumulu *pava* Z [Greenberg 1987], Cacaopera *bai* B + [Greenberg 1987], Terraba *bau* B in-law [Greenberg 1987], Tirub *bau* B in-law [Greenberg 1987], Chibcha *paba* F [Dyneley Prince 1912], **Paezan:** Cayapa *ápa* F, *apípi* ~ *apíku* FB [Altschuler 1965]; **ANDEAN: Northern:** Catacao *pua* B [Greenberg 1987], Colan *pua* B [Greenberg 1987], **Itucale-Sabela** Tuwituwey *bibi* B – [Greenberg 1987], **Quechuan:** Inca Quechua *apuschi* ~ *apuchi* GdGdF [Zuidema 1977], **Patagonian:** Gennaken *baja* GdF [Greenberg 1987], Tehuelche *bai* GdF [Greenberg 1987]; **EQUATORIAL-TUCANOAN: Macro-Tucanoan:** ***Puinave*** Papury *pui* B – [Greenberg 1987], Tiquie *pē-nā* B in-law [Greenberg 1987], Waikina *bāĩ-ga* ~ *baũ-ga* Z [Greenberg 1987], ***Tucano:*** Bara *pahkű* F, *báü* B [Jackson 1977], Cubeo *bakű* F, *bakűdyó* FB, *bakó* M [Goldman 1979], **Equatorial:** ***Jivaroan:*** Achuar *apa* (ref.), *aparu* (ad.) F, FB, *apachi* GdPt [Taylor 1998], ***Kariri-Tupi:*** Kariri *popo* B + [Greenberg 1987], Surui *mba* (ad.) F [Bontkes & Merrifield 1985], Kagwahiv *apí* F [Kracke 1987], Shipaya *upa* B + [Greenberg 1987], Guayaki *apäete* ~ *apä vai* ~ *apëmirö* ~ *apë pérombré* F, *apä* FB [Clastres 1968], Emerillon *pautso* F, FB, *pa'a* B + [Hurault & Frenay 1963], Oyampi *papa* F, FB, *paa* B + [Hurault 1962], Guarani *ba* F [Lafone Quevedo 1919], Mundurucu *bai* (ad.), *baibai* (ref.) F, FB [Murphy 1958]; ***Macro-Arawakan:*** Guahibo *apa* F [Merrifield 1985], Cuiva *aha* F, *ahon* FB, MZH [Arcand 1976], San José *di-pe* B [Greenberg 1987], Santa Rosa *di-pia* B [Greenberg 1987], Paumari *abiʔi* (ref.), *papai* (ad.) F, *badia* FB [Odmark & Landin 1985], Kuikuru *papa* F [Dole 1984], Island Carib *baba* (ref.), *bab-ue* (ad.) F, FB [Taylor 1946], Black Carib *bába* ~ *pápa* F affectionate [Solien 1960] ***Yuracare:*** Yuracare *pe* B – [Greenberg 1987]; **GE-PANO-CARIB: Macro-Carib:** Iroka Yuco, Yucpa, Motilon *pápa* F, FB [Reichel-Dolmatoff & Clark 1950], Wayana *papak*, *yapo* F, FB, *i-pa* GdCh [Hurault 1961], Trio *ipapa* F, FB, *ipipi* B +, *i-pa* GdCh [Rivière 1966], Hishcariana *pepe* B + [Greenberg 1987], Roucouyenne *pipi* B [Greenberg 1987], Yagua *rai-puipuin* B (ego f.), voc. *pwĩĩ* [Greenberg 1987], Txicao *pupa* (ad.) F, FB, MZH [Menget 1976], **Macro-Panoan:** ***Moseten:*** *voji-t* B, *voji* Z [Greenberg 1987], ***Mataco-Guaicuru:*** Toba *ỹapi* GdF [Miller 1966], Cashinahua *epa(kuin)* F, *baba(kuin)* SS [Kensinger 1984], Mayoruna *papa* F, FB, *baba* GdCh [Fieds & Merrifield 1980], **Macro-Ge:** ***Botocudo:*** Botocudo *po* B [Greenberg 1987], ***Ge-Kaingang:*** Apinage *pam*, *papai* F, FB, MZH, *papa-géty* WM, *papani* WZ [Da Matta 1979], Cayapo *bam* F, FB [Bamberger 1979] Palmas *ve* B, Z [Greenberg 1987], Guarapuruva *ve* Z [Greenberg 1987], Tibagi *ve* Z [Greenberg 1987].

PROTO-AUSTRALIAN *baba* **F, B+, UNCLASSIFIED:** Anula (Aniula) *bá-ba* B +, Z + [Warner 1933], Mangarayi *par-da* ~ *baḍa* F, *wa-wa* B +, *ya-ba* B –, *pa-pā* Z +, Z – [Warner 1933, Merlan 1982], Gagudju *ba-pa* F [Warner 1933], Nunggubuyu *ba-pa* F [Warner 1933], Umbugurla *ba-wa* F, *báda* B – [Warner 1933], **YIWAIDJAN:** Yiwaidja *ba-bum* FM, MF, DD, DS [Warner 1933], **GUNWINYGUAN:** Djauan (Jawony) *baba* B + [Warner 1933], Ngandi *wa-wa* B + [Warner 1933], Ngalakan *yapa* Z (ego m.), Z + (ego f.) [Merlan & Heath 1982], Wardaman *ba-pa* B +, FF, SS [Warner 1933], **BURRARAN:** Burrara *ba'pa* FZ, *ba-pa* D [Warner 1933], **MARAN:** Alawa *ba'ba* B +, *ba-ba'ba* Z +, Z – [Warner 1933], Warndarang *(nga-)bá-ba* F [Warner 1933], Mara *ba-ba* B + [Warner 1933, Spencer & Gillen 1904], Yikul *ba-ba* B + [Warner 1933], **WEST BARKLY:** Binbinga *pappa* B + [Spencer & Gillen 1904], Wambaya *pa* F, FB *pappa* B + [Spencer & Gillen 1904], Gnanji *pappaii* B +, *pappana* Z + [Spencer & Gillen 1904], Tjingili *pappa* B +, Ch [Spencer & Gillen 1904], **GARAWAN:** Garawa *ba-wa* B +, *ba-ba băn-ya* B –, Z – [Warner 1933], **DALY:** Marithiyel (= Brinkan) *ba-pa* F [Warner 1933], **DJAMINDJUNGAN:** Djamindjung *bī-pī* FZ [Warner 1933], **NYULNYUAN:** Nyulnyul *babal* B +, *bap* ZS, ZD [Elkin 1931, Scheffler 1978], **WORORAN:** Wunambal *abia* B –, *babai* MBS, MBD [Lucich 1968], Ungarinjin *baba* MBS, MBD [Lucich 1968], Worora *abia* B + [Lucich 1968]; **PAMA-NYUNGAN: Unclassified:** Kurnai (Muk-Thang) *babŭk* MB, *baŭ-ŭng* Z + [Howitt 1871], Mabiuag *baba* F [Ray 1923], Muruwari *bába* Z + [Radcliffe-Brown 1928], Warrumungu *papati* B + [Spencer & Gillen 1904], Wailwun (Ngiumba) *bubā* F [Ridley 1875, Mathews 1903], Tati Tati *beṭ* F, *paka* MM, MMB [Radcliffe-Brown 1918], ŋganguruku *pita* F, FB [Radcliffe-Brown 1918], Forest River *baba* MF, *abula* B +, FF [Elkin 1932], Drysdale River *papa* MF [Hernandez 1941], **Yuulngu:** Yandjinang *wowī* B +, *bāōpī* FZ [Warner 1933], Dhuwai *bāpa* F [Heath 1982], Djinba *wo-wak* B + [Warner 1933], Ritharngu *ba-pung* F [Warner 1933], Dhay'yi *bapa* F, *wa-wa* B + [Warner 1933], Murngin *bapa* F, FB, *wa-wa* B + [Warner 1933], Yan-nhangu (= Yaernungo?) *wa-wa* B + [Warner 1933]; **Tangic:** Lardil *pape* FM, FMB [Hale 1982], **Paman:** Wudhadhi *īβaθa* F, *īβaθa* FB –, *āpiθa* FM, FMB [McConnel 1959], Tjugundji *av'e* FB – [Thomson 1972], Linngithigh *pi* FM, FMB

[McConnel 1959], Ngkoth *ipīy:ai* FB, *paip* FM, FMB [McConnel 1959], Yinwum *ißee* FB –, *mbāpa* B +, *pīpi* FM, FMB [McConnel 1959], Aritinngithigh *ißee* FB –, *paip* FM, FMB [McConnel 1959], Awngthim *ißee* FB –, *paiyi* FM, FMB [McConnel 1959], Mbiywom *päp* FM, FMB [McConnel 1959], Ntrangith *pii* FM, FMB [McConnel 1959], Wik-Ngathana *pipa* F, FB – [Thomson, McConnel 1934], Wik-Mungkan *pipa* F, MZH, *pipamany* FB +, *pinya* FB –, *yapa* Z + [Thomson 1972, McConnel 1934], Wik-Natera *pipia* F, MZH, *pipa* F [McConnel 1934], ~~Yir~~ Yoront (Koko Minjena) *ping* F, *pan* FF, *pa'a* FM, FMB [Sharp 1934, Thomson 1972], Umpila *pipi* F, FB –, MZ –H, *papa* M, MZ – [Thomson 1972], Yintjina (Umbuygamu?) *pipi* F, B +, *papa* M [Thomson 1972], **Yalanjic:** Guugu Yimidhirr *peba*, *beba* F [Haviland 1974], **Dyirbalic:** Dyirbal *babi* FM [Dixon 1989], **Yuin-Kuric:** Ngeumba *papa* F [Mathews 1903], Woŋaibon (Ngemba) *babá* F, FB, MZH, *bábuna* FFBS [Radcliffe-Brown 1923], **Durubalic:** Turrubal *bubā* F [Ridley 1875], **Gumbaynggiric:** Gumbaynggir *bāba* F [Smythe 1948], **Wiradhuric:** Wiradhuri *babbin* F [Ridley 1875], Gamilarai *bubā* ~ *binan* F [Ridley 1875, Howitt 1871], **Ngarinyeric:** ŋaiyau (=Ngayawung?) *(ngaiyo)pitti* my F, *pitai* your F, *bāākai* MM, *bāāko* GdCh [Radcliffe-Brown 1918], **Karnic:** Pidalpa *(ng)apari* F, FB, *papa* FZ, MBDCh [Elkin 1938], Yandruwandha *apari* F, FB, *papa* MF, MMB [Elkin 1938], Southern Yaurawaka *apadi* F, FB [Elkin 1938], Northern Yaurawaka *napadi* F, FB [Elkin 1938], Dieri *(ng)apari* F, FB, *papa* FZ, MBDCh [Elkin 1938, Scheffler 1978], **Kalkatungic:** Kalkatungu *pâpĭ* FM [Roth 1897], **Southwest:** Malngin *ná-pa* FF, FFZ, SS, SD, *na-baī-ī* B + [Warner 1933], Gurindji *papa* B +, B [McConvell 1982], Mudburra *na'pa* FF, SS, B + [Warner 1933], Bilinara (Ngrainmun Ngarinman) *nga-pa* FF, SS, *ná-pa* B + [Warner 1933], Karadjeri *babalu* B +, B [Scheffler 1978, Elkin 1932], Marthuyhunira *babu* F, FB [Radcliffe-Brown 1913], Talainji *babu* F, FB [Radcliffe-Brown 1913], Warlpiri *babali* B + [Scheffler 1978].

INDO-PACIFIC: PROTO-TRANS-NEW GUINEA *apa* **F (Matthey & bancel), Main Section:** Selepet *tâbâ* relative of 4th & higher ascending gen., *apet*, *ibi* W [McElhanon 1968], Komba *ap* (ad.) H, *abin* (ad.) W [McElhanon 1969], Gadsup *-poe* F, *-napu* FF, *-pae* B +, *opi* Z (ego m.) [Capell 1949], Agarabi *pòe* F, *ba* B –, *ba'ai* B + [Capell 1949], Awa *abowa* ~ *abahni* F [Loving 1973], Kamano *nefá* F, FB [Berndt 1954], Fɔ:re *nabaí* F, FB [Berndt 1954], South Fore *(n)abanempa* F, FB [Glasse & Lindenbaum 1980], Mbowamb (Medlpa) *wawa* (ref.) FB, *apö*, *apöm* MB (ad. & ref.), *papa* (ad.) MZ, *api* HM [Brandewie 1974], Melpa *apom* (ref.), *ape* (ad.) MM *apa* MB, male of mother's clan [Strathern 1980], Sinasina *abe* F [Capell 1949], Dom *abo* F [Capell 1949], Tjuave (Chuave) *afo* F [Capell 1949], Huli *apa* F, FB, *apapuni* MB [Glasse 1968], Mae Enga *apane* (ad.) F, patrilin. male cognates of 1st ascending generation, *apuri* GdM, GdCh (ego f.), *pape* H's cognates (ego m.), M, MZ (ego f.) [Meggit 1964], Ipili *apurini* GdCh (ego f.), *apane* ZS, ZD (ego m.), MB [Meggit 1957], Kewa *apa* (ref.) F, *papa* FBW [Franklin 1965], Kutubu *aba* F, *abe* FZ, *popa* Z, *babo* FBW [Williams 1941], Telefomin (Telefol) *baáb* my B +, *ábeén* my M, *baábeén* my FZ, Z + [Healey 1962], Duna *aba* distant cousin [Modjeska 1980], Kukukuku *apo* F, FB, MZH [Blackwood 1978], Konda Dani *ombo* FF, MF, *appur* Ch (ego m.) [O'Brien 1980], Grand Valley Dani *opase* F, *opa* FF, MF *abut* Ch (ego m.) [Heider 1980], Saberi (Isirawa) *papu* (ref.) MB [Erickson 1976], Moni *ambau* FF, *baba* FM, MM, *apai* WB [Van Nunen 1980], Mairasi *avo* GdPt [Peckham 1981], **Madang - Adelbert Range:** Usurufa (Usu?) *a'banu* F, FB [Berndt 1954], W(Y)angullam *agapa* F, *ombo* FF, MF, *aput* SCh (ego f.) [Ploeg 1980], **Eleman:** Namau *apono* MB [Williams 1924], **Teberan-Pawaian:** Daribi *ape* B (ego f.), Z (ego m.), *paba* FW, MZ [Wagner 1980], Polopa (=Podopa) *paba* MZ, FBW (ref.) [Brown 1980], **Nimboran:** Kemtuk *babu* GdPt [Van der Wilden 1976], Nimboran *babu* GdPt [May 1981], Kaure *apwa* B in-law [Barbarossa Dommel 1997], **Transfly – Bukala River:** Kiwai *abéra* ~ *b'ába* (ad.) F, *'auo ab'éra* ~ *'auo bába* FB, MB, *b'aba* FF, MF [Landtman 1927], Kunini *baba* F [Ray 1923], Me(y)riam (Torres Straits) *bába* F [Ray 1923], **Northern:** Iafar *abugunguk* (ref.), *apiy* (ad.) FF, MF, GdCh (ego m.), *abigina* male coll. in 2nd ascending gen., *papyo* (ad.) D [Juillerat 1986], Edopi *awa* F [Hwa Kim 1997], Sikaritai *awa* F *abyá* cross cous. [Martin 1997]; **SKO:** Makasai *'bɔba* F [Capell 1944], Boumai *habu* F [Capell 1949]; **TORRICELLI:** Shortlands (Alu) *apa* F [Rivers 1914]; **SEPIK-RAMU:** Kwoma *apok* (ref.), *epi* (ad.) F, FB, MZH [Bowden 1983], Abelam *yabaʔ* F, FB members of the father's generation in the clan [Kaberry 1941], Hewa *papa* FM, MM, *papum* GdCh, *apa* MB [Steadman 1980], Banaro *mu-ápi* MB [Thurnwald 1916], Mundugunor *avbang* F, FB, MZH [McDowell 1991]; **EAST PAPUAN:** Buin *papa* MB, FZH [Rivers 1914], Santa Cruz Isl. (Cape Mendaña) *papo-* FF, SCh [Davenport 1964]; **UNCLASSIFIED:** Baktamin *apo* (ad.) Z + [Barth & Reitan 1980], Gururumba *abono* F, FB, GdF [Newman 1963], Kaimbi *apə* MB, *api* GdM, *apu(m)* MBW [Nelson 1980], Jate *afɔɔʔ* ~ *afu* F, FB [Berndt 1954].

Appendix B

Reflexes of Proto-Sapiens *(T)ATA ~ (D)ADA*
'male elder on the father's side'

Hereafter are given more than 632 potential reflexes of the Proto-Sapiens root *(T)ATA ~ (D)ADA* 'male elder on the father's side.' Presentation is the same as for Appendix A.

KHOISAN: //Au//en *tai* M [Bleek], Ikung *tai* M [Bleek 1923-26], Ju/'hoansi (San) *tai* M [Schwimmer 2001], Nama, *tatab* F, FB, [Hoernlé 1925], Naron *tamai* FB [Bleek 1923-26], /Xam *tata* F, *itau* (ad.) M. [Bleek 1923-26].

NIGER-KORDOFANIAN: KORDOFANIAN: Nuba, *taagenya* F, FB [Seligmann 1932], Talodi *dadam* GdPt, [Seligmann 1932], Tumtum *tadum* GdPt, *tada* GdCh [Seligmann 1932], **NIGER-CONGO: Mande:** Samo *dále* B- [Héritier 1981] **West Atlantic** Bedik *tyatyán* GdF [Ferry 1991], **North Centr. Niger-Congo:** Minyanka *to* F, FB, MB [Jonckers 1983], ***Proto-Gbaya:* *dáà*** F [Moñino 1995], Gbaya Kara Bodoe *dáà* F [Moñino 1995], Yakoma *too* F [Moñino 1995], Baka *dāà* F [Moñino 1995], Mba-ne *tá-* F [Moñino 1995], Zande *tita* GdPt, GdCh [Seligmann 1932], **Sth Centr. Niger-Congo:** Abron *nda* F, FB [Alland 1984], Gonja *n'tuto* F, FB, *da* B+, Z+ [Héritier 1981], Nupe (Núúpɛ) *ndá* F, [Koelle 1854], Gwari (Púúka) *íída* F [Koelle 1854], Idoma (Yãla) *áda* F [Koelle 1854], Igbo *ada* D+ [Ardener 1954], Kambari (Kámbaali) *dááda* F [Koelle 1854], Bassa Nge? (Bása) *ńda* F [Koelle 1854], Katab *atio* F, FB, MZH, MB, *atio-hwop* FF, MF, *atuok* H [McKinney 1983], Kaje *ati* F, FB, MZH, MB, *atiokwop* FF, *antyók* H [McKinney 1983], Ebe (Ébɛɛ) *ɛɛdá* F [Koelle 1854], Boritsũ (Bɔ́riitsu) *íídši* F [Koelle 1854], Jarawa (Dsááraawa) *táda* F [Koelle 1854], ***Proto Bantu:*** **tààta* F [Guthrie 1967-71], Fang *tate* my F [Alexandre & Binet 1958], Nde (Œkámtuluufu) *ńtaa* F [Koelle 1854], Nde (Úúdɔm) *ńta* F [Koelle 1854], Nde (Mbɔ́fɔɔn) *ńta* F [Koelle 1854], Bate? (Bááyɔŋ) *tááya ~ tííta* F [Koelle 1854], Bamum (Bámɔm) *téta* F [Koelle 1854], ?Cameroun [?Kom] (Kum) *ta ~ téta* F [Koelle 1854], Bali/Ngaaka (Báálu) *títaa* F [Koelle 1854], Kota (Undááza) *tááta* F [Koelle 1854], Mbete (Buumbéte) *tááta* F [Koelle 1854], Northern Teke (Mbáámba) *tááta* F [Koelle 1854], Boõ [Teke gr.] (Babúma) *tááta* F [Koelle 1854] Tsaayi [Teke group] (Nteɣɛ) *tááta* F [Koelle 1854], Laali? [Teke gr.] (Mutsááya) *tááta* F [Koelle 1854], Gusii *tata* my F [Whiteley 1959, Mayer 1965] , Kuria *taatá* my F [Whiteley 1959], Kikuyu *tata* FZ, MZ [Middleton 1953], Kagoro (Kaguru) *acio* F, MZH, MB cf. Kaje, *atuok* H [McKinney 1983], Yombe (Nyómbɛ) *tááta* F [Koelle 1854], Sundi (Basúúnde) *tááta* F [Koelle 1854], Kongo (Kabɛ́nda) *tátaa* F [Koelle 1854], Northeastern Kongo (Musɛntáándu) *tááta* F [Koelle 1854], Central Kongo (Mimbɔ́ma) *tááta* F [Koelle 1854], Sama (Kisááma) *tátɛɛtu* F [Koelle 1854], Mbangala (Kásaandš) *tááda* F [Koelle 1854], Nsenga *atata* F, Ch [Barnes 1959], Rundi *data* (ad. & ref). F [Maquet 1961], Ruund (Rúúnda) *táádok* F [Koelle 1854], Nyanga(tom) *ata* GdM [Tornay 1981], Kanyoka (Kanyííka) *tááta* F [Koelle 1854], Nyakyusa *tata* F, FB [Wilson 1950], Ila *tata* my F [Smith & Dale 1920], Tonga (Nyámbaan) *tátaan* F [Koelle 1854], Makua (Maatátaan) *titi* F [Koelle 1854], Mbundu *tate* my F, my FB [Koelle 1854, Childs 1949], Ngonde (Wangonde) *tata* F, FB, FZH, MZH [Sanderson 1923], Thonga *tatana* F, FB [Jaques 1927-29, Warmelo 1931], South Sotho *ntate* my F [Warmelo 1931], Kxatla *ntate* my F [Warmelo 1931], North Sotho (Moletlane) *ntate* my F [Warmelo 1931], Pedi *tate* my F , WF [Warmelo 1931], Wakwandu *tate* F [Medeiros 1981], Tswana *ntatê* F [Schapera 1950], Lozi *ndate* F [Gluckman 1950], Xhosa *(u)tata* F [Warmelo 1931], Zulu, *dade* Z+, Z– [Gluckman 1950], Yakö *tata* (ad.) F, FB, MB [Forde 1950, Wilson 1950], Luvale, *tata* F, FB [White 1955], Nyaneka *tate* my F [Estermann 1977], Nkumbi *tate* my F [Estermann 1977], Ndimba *tate* my F [Estermann 1977], Umbundu (Paŋgééla) *tááta* F [Koelle 1854].

NILO-SAHARAN: SAHARAN: Kanuri *atta* Z+ [Cohen 1960], **EAST SUDANIC: Eastern:** Koegu *aáda* my B, [Hieda 1991], Ingassana (Gaam) *atat* GdM [Seligman 1932], **Nilotic:** *Western Nilotic:* Lango *tatai* GdM [Seligman 1932], Luo, *da* GdM [Roscoe 1915], **CENTRAL SUDANIC:** Gula *táá* FZ [Pairault 1964], Uduk *a-tad'a* M [Fleming 2002], Mbuti *tata* GdPt [Turnbull 1965].

AFROASIATIC: PROTO-SEMITIC: *ʔad(d)* **F** [Cohen 1970], Ugaritic *ád* F [Blažek 2002], Amharic *tatay* ad. M, GdM [Messing 1957], **ANCIENT EGYPTIAN:** Ancient Egyptian *ít* F [Blažek 2002], Coptic *íty-w* F [Blažek 2002], **PROTO-BERBER:** *√d-d* **F** [Blažek 2002], Tamashek (Kándin) *adda* F [Bode 2004], Tuareg *ada* F, FB [Murphy 1967], Taitoq *tik* your F [Blažek 2002], Awlemidden *adda ~ idda* F [Blažek 2002], Ayr *adda* F [Blažek 2002], Ahaggar *ti* F [Blažek 2002], Shilha, *adda ~ dādda* uncle [Blažek 2002], Ghadames *dedda ~ dadda* F [Blažek 2002], Nefusi *dada* F [Blažek 2002], Sened *dada* F [Blažek 2002] Wargli *dadda* (ad.) F [Blažek 2002], Kabyle *dada* FB, B [Blažek 2002], Zenaga *ĭẹddaḥ* GdF [Blažek 2002], Guanche *atis-aca* your F [Blažek 2002], **ONGOTAN:** Ongota *adda* B+, Z+ [Fleming 2002], **CHADIC** Karai-Karai *daadaarám* FFFFF [Ibriszimow & Porkhomovsky 2001], Bole *daadá* senior [Ibriszimow & Porkhomovsky 2001], Hausa *'da* S [Greenberg 1947], Lamang *dada* F [Wolff 1994], Muktele *tšin* F, *deda* B, Z, [Juillerat 1971], Daffo-Butura *'adá* F [Blažek 2002], Sha *'ada* F [Blažek 2002], Wandala *də* F [Blažek 2002], Mada *díídẹ* F [Blažek 2002], Zelgwa *dé̱é̱diạ* F [Blažek 2002], **OMOTIC,** Janjero *ayta* B, *ate* B-, Z- [Fleming pers. com]., Adikas *dádu* Ch [Fleming pers. com.], **CUSHITIC: Eastern Cushitic:** Somali *adeer* (ad.) FB, *oday* ancestors, elders [Haberland & Lamberti 1988, Lewis 1994], Oromo *adera* FB, *adada* FZ [Huntingford 1955], **Western Cushitic:** Dac'e *ade* F [Haberland & Lamberti 1988], Zaysse *adda* F [Haberland & Lamberti 1988].

SUMERIAN: Sumerian *ada* F [Halloran & Hamori 1999].

PROTO-EURASIATIC: ***(t)ata* F, FB, FF, PROTO-INDO-HITTITE:** ***(t)ata* F, FB, FF, Anatolian:** Hatti , *da* F, [Scythian Voc. and Names], Hittite , *attaš* F, [Wordick 1970], Louvian , *tati* F, [Yourdictionary.com], Lycian , *tedi* F, [Yourdictionary.com], **Indo-European:** ***Italic:*** Latin *atta* daddy [Wordick 1970], ***Germanic:*** Gotic *atta, attila* F [Wordick 1970], English *dad*, ***Celtic:*** Middle Breton *tat* F [Izard 1965], Breton *tad* F Izard 1965], Welsh *tade* F [Izard 1965], Old Cornish *tat* F [Izard 1965, *Vocabularium Cornicum*], ***Classical Greek*** *atta* F [Wordick 1970], ***Slavic:*** Polish, *tata* F, [Pers. data], ***Albanian*** *at* F, [Wordick 1970], ***Indo-Iranian: Iranian:*** Avestan *taa* F [Wordick 1970], Mede *atu* F [Hamori s.d.], Scythian *da ~ iti?* F [Hamori s.d.], Jaghuri *atai* F [Bacon 1951], Besud *atá* F [Schurmann 1962], Dai Kundi tâtá (ad.) FB [Schurmann 1962], ***Proto-Indic:*** ***tât'a* F, dad** [Strand 2003], Sanskrit *tata* F, *dādda* elder paternal kinsman [Karve 1953, Strand 2003], Pali *taata* F [Karve 1953], Sinhalese *kiriaattaa* GdF [Trautmann 1981], Vedda *atta* M [Seligmann & Seligmann 1911], Kol *daadaa* F [Griffith 1946], Rajasthani taauu FB+, *daadaa* FF, *dādī* FM [Karve 1953], Sindhi *daaḍo* FF, *dādo* B+, *ḍāḍī* FM, *dādī* Z+ [Karve 1953], Punjabi taaiyaa FB+, *daaddaa* FF, *dāddi* FM [Karve 1953], Gujarati *daadaa* FF, *dādī* FM [Turner 1962, Karve 1953], Bhil *dada* (ad.) GdF, *dada* B+ [Nath 1960], Urdu *dada* FF , *dadi* FM [Malinowski 2004], Hindi taauu FB+, *daadaa* FF, *dādî* FM, *dādas* HFM [Turner 1962, Karve 1953], Pahari *dādā* B+, MBS, *dada* MZS [Karve 1953], Bihari *dada* FF, *dadi* FM [Karve 1953], Oriya *dadda* FB+, *attā* FZ, Z+ [Karve 1953], Bengali *daadaa* FF, *dādi* FM, *dada* B+ [Karve 1953], Mer *ata ~ ato* FF, MF [Turner 1962], Baiga *dada* F [Turner 1962], ***Nuristani:*** Açharêta *d'ôdo* FF, *d'êdi* FM [Strand 2003], Kamv'iri *t'ot* F, FB [Strand 2003], Vä *tâta* F, ta FB, *elta* FF [Strand 2003], Kâta *to* F, FB [Strand 2003], BhaT'esa *du* GdF, *däi* GdM [Strand 2003], Ames *tâta* F, FB [Strand 2003], Nisei *tâti* F, FB [Strand 2003], SaNu *dâi* F, FB, *aũdâi* FF [Strand 2003], Kom *tot* F, FB [Strand 2003], Khow *tat* F [Strand 2003], Kal'aSa *d'ada* F, FB [Strand 2003], **URALIC-YUKAGHIR: Yukaghir:** Kolyma Yukaghir *tata* B+ [Jochelson 1926], **Uralic:** Erze *tetjaj* F, elder [Smirnov 1898], Mordvin *tetjaj* F, elder, [Smirnov 1898], Hungarian *atya* F [Morgan 1871], Samoyed *at'a* F [Halloran & Hamori 1999], Estonian *att* F [Halloran & Hamori 1999], **ALTAIC: Mongol:** Dagor *taytay* GdM [Vreeland 1953], Monguor *ada* F, *adie* GdF [Schram 1954], **Tungus:** Manchu *tada* F [Shirokogoroff 1924], Biracen *adama* GdF [Shirokogoroff 1929], **Proto-Turkic:** ***ata* F, ancestor,** Old Turkish (Orkhon) *ata* F, *ataqy* uncle, *tat* SS [Krader 1953, Starostin 2003], Middle Turkish *ata* F, [Starostin 2003], Turkish *dede* GdF, *ata* ancestor [Cuisenier 1964], Altai *ada* F, ancestor [Starostin 2003], Tuva-Tolofar *a'da* F [Starostin 2003], Khakassian *ada* F

[Starostin 2003], Bashkir *ata* F [Starostin 2003], Uighur *ata* F, ancestor [Starostin 2003], Karakalpak *ata* ancestor [Starostin 2003], Uzbek *olta* F [Starostin 2003], Kumyk *ata* F [Starostin 2003], Balkar *ata* F [Starostin 2003], Noghai *ata* F [Starostin 2003], Kazakh *ata* F, FF [Krader 1953, Starostin 2003], Kirghiz *ata* F, FF, ancestor [Krader 1953, Starostin 2003], Sary-Yughur *ata* F [Starostin 2003], Turkmen *ata* FF [Starostin 2003], Azeri *ata* F [Starostin 2003], Karakhanid *ata* ~ *ataqŭh* F [Starostin 2003], Tatar *ata* ~ *eti* F, *etkej* uncle [Starostin 2003], **ESKIMO-ALEUT: Proto-Eskimo:** atata **F, GdF** [Fortescue & *al.* 1994], West Greenland *ataata* ~ *ata°ta* F, *aatak* ~ *a°tʌq* GdF [Gessain & *al.* 1982, Birket Smith 1928] , East Greenland *ataata* F, [Gessain & *al.* 1982], Thule *ata°ta* GdF [Birket Smith 1928], Melville Peninsula *ata°ta* F, *ata°tätciaq̃* GdF [Birket Smith 1928], Simpson Peninsula *ata°ta* F, *it°ɔq* GdF [Birket Smith 1928], Upper Kazan River *ata°ta* F, *ata°täciʌq* GdF [Birket Smith 1928], Labrador *ata°tʌq* F [Rasmussen 1941], Kangianerm *ata°ta* ~ *ta°ta* GdF [Rasmussen 1941], Cumberland *ātā'-tū-gū* my F [Dall 1970], Nunamiut (Alaska) *atata* FF [Pospisil 1964], Inupiak (Alaska) ataataŋa GdF [Heinrich 1960], Aleut *áda(q)* F [Geoghegan 1834], **CHUKCHI-KAMCHATKAN:** Chukchi *ate* (ad.) F [Bogoras 1904-09], Koryak (Kamenskoye) *tata* F [Jochelson 1908], **GILYAK** *ytk* F, FB, *atk* FF [Sternberg 1933, Scheffler & Lounsbury 1971].

BASQUE *aita* F.

PROTO-NORTH CAUCASIAN, *dājV* ~ *dādājV* **F, M, Avaro-Andian:** Avar *dada* dad [Starostin 2003], Andi, *dada* dad [Starostin 2003], Akhvakh *dada* dad [Starostin 2003], Chamalal *dad* dad [Starostin 2003], Lak *tātā* GdF [Starostin 2003], **Nakh:** Chechen *daa* F [Starostin 2003], Ingush *da* F [Starostin 2003], Batsbi *dad* F [Starostin 2003], **Dargwa:** Chiragh *dat:e* F [Starostin 2003], **Lezghian:** Lezghi *dide* M [Starostin 2003], Tabasaran *dada* M [Starostin 2003], Agul *dad* F [Starostin 2003], Rutul *did* F [Starostin 2003], Tsakhur *didi* GdF [Starostin 2003], Kryz *da"j* M [Starostin 2003], Budukh *dide* M [Starostin 2003], Archi *dija* F [Starostin 2003], Khinalug *da"da"* M [Starostin 2003], **Abkhaz-Adyghe:** Abkhaz *dad* (ad.) GdF [Starostin 2003], Abaza *da/da* (ad.) GdF [Starostin 2003], Adyghe *tə́* F, *taat* dad [Starostin 2003], Circassian *aada* F, *da/da* (ad.) GdF [Starostin 2003], Ubykh *dad* dad [Starostin 2003].

ELAMO-DRAVIDIAN: ELAMITE *atta* F [Oriental Inst. Univ. Chicago 1998], **DRAVIDIAN: Northeast:** Kurukh *(eṅg) dadas* B+ [Trautmann 1981], Central , Kolami *dādā* B+ [Karve 1953], Hill Maria Gondi *tādŏ* FF, *dādā* B+, *ātŏ* FZ [Grigson 1949 Trautmann1981], Gomu Goya Gondi *dādāl* FF, *tātāl* WFF [Trautmann 1981], Sironcha Gondi *tāta* FF [Starostin 2003], ***Kui-Kuvi:*** [Trautmann 1981], Kui (Kondh) *dādi* FB–, *dāda* B+ [Starostin 2003, Trautmann 1981], Kuwi *atta* aunt [Starostin 2003], Andrha *tattā* GdF, *attā* FZ [Karve 1953], Telugu *tata* F, *tāta* FF, *attei* FZ, *atta* M [Trautmann 1981, Bossé 1983], **South:** Tulu *doḍḍappäji* FB+ [Trautmann 1981], Kannada *tande* (ref.) F, *doḍḍa* FB+, MZ+, FFB+, *mut-tātā* FF, *atte* MBW [Karve 1953, Trautmann 1981], Kodagu (Coorg) *ta-yi* FM, *doḍḍavvē* MZ [Trautmann 1981], Tamil *attan* F, *tattā* GdF, *attai* FZ, *attāṉ* MBS+ [Karve 1953, Trautmann 1981], Malayalam Mullukurumba *attan* F, *atta* M, *eattathi* Z+ [Trautmann 1981].

PROTO-AUSTRIC: *(ta) ta* **GdF** [Hayes 2003], **MIAO-YAO:** Magpie Miao *tsi* F, *tai* MM, [Ruey 1960], **PROTO-AUSTROASIATIC:** *(ta) taq* **GdF** [Hayes 2003], **Proto-Munda:** *tata[nq]* **GdF** [Hayes 2003], Northern Munda *tata* GdF [Parkin 1985], Southern Munda *tata* GdF [Parkin 1985], Kharia *tataŋ* GdF [Hayes 2003], Santali *dada* B+ [Karve 1953], **Proto-Mon-Khmer:** *(ta) taq* **GdF** [Hayes 2003], Lamet *tā* GdF [Needham 1960], Vietnamese *cha* ~ *thay* F [Spencer 1945, Vien Tran 2002], Khmer *tā* GdF, old man [Porée & Maspero 1938, Hayes 2003], Pear *ta* GdF [Hayes 2003], Old Mon *ta* F, GdF [Hayes 2003], Kenta *ta* GdF [Schebesta 1954], Jahai *ta* GdF [Schebesta 1954], Semai *ato'* GdF [Schebesta 1954], Lanoh *ta* GdF [Schebesta 1954], Temiar *tatā* old man [Hayes 2003], **Proto-Daic:** *tata* **F, GdF** [Hayes 2003], Tai (Payi) *te* F [Credner 1935], Southern Thai *ta* GdF [Bernatzik 1947], Lanathai *ta* MF [Kingshill 1960], **AUSTRONESIAN:** Atayalic, Sedeq, *ata* aunt [Mabuchi 1960], **Paiwanic:** Bunun, *taš'an* B, Z [Mabuchi 1960], **Malayo-Polynesian: *Western Malayo-Polynesian:*** Yap *tutu* GdF [Schneider 1953], Agta *dada* (ad. & ref.) aunt [Headland 1987], Cebuano *tatay* (ad.) F [Hart 1980], Baduj *adi* B–, Z–, *tétéh* Z+ [Berthe 1965], Ambonese *tete'* GdF, *adi* B–, Z– [Kennedy 1955], Javanese *adi* B–, Z– [Koentjaraningrat 1960], Jarai *thâ* old person [Bernatzik 1947], Rhade *adei* B–, Z– [Hautecloque-Howe 1985], ***Central Eastern Malayo Polynesian:*** West Timor *'tataf B+* [Capell 1944], Ema (Kemak) *tatar* elders from 3rd asc. generation, ancestor [Hicks 1986], Waikenu *'tataf* B+ [Capell 1944], Ndao *teto* FZ [Forth 1988], Manggarai *tai* relative from 3rd genealogical level [Hicks 1984], Irarutu *adie* F, *adat* GdPt [Matsumura 1997], ***Oceanic:*** Lesu *tata* MB [Powdermaker 1933], Luburua *tatak* MB, FZH [Chinnery 1931], Pinigindu *tata* MB, FZH [Chinnery 1931], Konobin *tata* MB, FZH [Chinnery 1931], Limalaua *tatak* MB, FZH [Chinnery 1931], Letatan *tata* MB, FZH [Chinnery

1931], Balowan (Baluan) *atong* H [Mead 1934], Pati *ta'tene* his F [Leenhardt 1946], Pinje *tata* F [Leenhardt 1946], Nauruan *etəŋin* F, FB, *atin* cross-cousin [Wedgwood 1936], Mualevu *tata* (ad.) F, FB [Walter 1975], Tokatoka *tata* (ad.) F, FB [Walter 1975], Bauan *tata* F, FB [Cederbaum 1998], Nandrau *taitai* GdF, *tatai* GdM [Rivers 1914], Tavua *ta* F, *tai* GdF [Rivers 1914], Bughotu *dadhe* BS (ego f.) [Rivers 1914], Lau tei M, [Rivers 1914], Hiw *tata* M [Rivers 1914], Mota *itata* F in law, *tutuai* B, Z [Rivers 1914], Merlav *tata* B, Z [Rivers 1914], Vao *tete* (ref.) F, FB, MZH [Layard 1942], North Efate *tata* MM, *tataa* GdGdCh [Guiart 1964], West Futuna *tata* F, daddy [Marck 1996], Samoan *atali'i* S (ego m.) [Marck 1996].

BURUSHASKI; Hunza *dado* GdF [Parkin 1987].

SINO-TIBETAN: TIBETO-KAREN: Tibetic: Newari *tata* (ref.) Z+, *dāju* (ref.) B+ [Toffin 1975], Gurung *a-ta* (ref.) B+ (plur.) [Pignède 1966], Tsangla *(a)ta* B+ [Benedict 1941], Balti *ata* (ref.) F [Benedict 1941], Purik *ata* (ref.) F [Benedict 1941], Tibetan *ta* ~ *ata* used by children F [Benedict 1941], Kanauri *(a)ta* B+ [Benedict 1941], Byangsi *tata* Z+ (ego f.) [Benedict 1941, Allen 1975], Baric, Bodo *(a)da* B+ [Benedict 1941], Garo *ada* B+ [Nakane 1967], Kokborok, *dada* B+ [Jacquesson pers. com.], **Burmic:** Lhota *(o)ta* B+,Z+ [Mills 1922], Ao *(te)ta* (ref.) Z+ [Benedict 1941], Rengma *(a)da* FB+, MZH [Benedict 1941], Dafla *tĕtĕ* FB–, B+ [Benedict 1941], Sho *(a)da* B+ [Benedict 1941], Burmese (dialectal) *tata* F [Benedict 1941], Lolo (Liang-Shan) *dada* (ad.) FB+ [Lin 1947], Lolo (Guizou, XVII^th^ cent.) *da* F [Kryukov 1998], Nasupo *ade* F, *adewo* FB+, *adenyo* FB– [Kryukov 1998], Akha *àdā́* F, HF [Bernatzik 1947].

NA-DENE: HAIDA *dā* B (ego f) [Mayer-Durlach 1928], **CONTINENTAL NA-DENE:** Tlingit *àt`* FZ [Mayer-Durlach 1928], **Eyak-Athabaskan:** *Eyak aɒa* F, *ati^n^* FB+, *ati^n^cia* FB–, *at* FZ+, *atcia* FZ– [Birket-Smith & De Laguna 1938], ***Proto-Athabaskan:*** *taʔ* **F**, *ta-yĕ* **FB** [Hoijer 1956], Tanaina *dada* F, FB [Hoijer 1956], Ingalik *-toʔ* F [Hoijer 1956], Anvik *-tóʔŏ* ~ *ə-tá* (ad.) F [Hoijer 1956], Tena *-thŏʔ* F, *tōya* FB [Hoijer 1956], Tanana *-taa* F, *-tai* FB [Hoijer 1956], Tahltan *e-theu* my F [Hoijer 1956], Kaska *-ta* F, FB, *e-teza* MB [Hoijer 1956], Tsetsaut *-ta* F, FB [Hoijer 1956], Tolowa *ta* F, *ati* Z+, FZ [Gifford 1922, Hoijer 1956], Hupa *-taʔ* F, *-ta°i* FB, *at* Z+ [Hoijer 1956], Mattole *-taʔ* F [Hoijer 1956], Washington Athabaskan *ta* ~ *otha* F, *s-taa* my F, *s-tan* my FB [Hoijer 1956], Lassik *ta* F, *at* Z+, FZ [Gifford 1922, Hoijer 1956], Sinkyone *ta* F, *ade* Z+, FZ [Gifford 1922, Hoijer 1956], Kato *-taʔ* F, *at* Z+, FZ [Hoijer 1956], Kutchin *-tĭʔ* F [Hoijer 1956], Loucheux *tien* F, *e-ti* FB [Hoijer 1956], Hare *in-ta, ʔɛ-taʔ* F, *e-taë* FB [Hoijer 1956], Dogrib *e-ta* F [Hoijer 1956], Bear Lake *ʔɛ-taʔ* F [Hoijer 1956], Slave *-ta* F, FB, *eh-täeh* MZH, *dede* uncle, *thätha* MB [Hoijer 1956], Chipewyan *-ta* F [Hoijer 1956], Beaver *-taʔ* ~ *teʔa* (ad.) F, *es-taze* FB [Hoijer 1956], Sekani *-ta* F, FB [Hoijer 1956], Carrier *-tai* FB, *a-tai* step F [Goldman 1934, Hoijer 1956], Sarcee *-taʔ* ~ *itą̂°* (ad.) F [Hoijer 1956], Chiricahua *-tà°* F [Hoijer 1956], Mescalero *-tà°* F, FB, *dádé* F [Hoijer 1956], Jicarilla *dádá* F [Hoijer 1956], Lipan *dádí* F [Hoijer 1956], Navajo *-tà°ʔ* F, male of F's clan [Hoijer 1956], Wailaki *-taʔ* F, *at* Z+, FZ [Gifford 1922, Hoijer 1956].

AMERIND: ALMOSAN-KERESIOUAN: Almosan: Kutenai *t°a°t`* B+ [Sapir 1918a, 1919], ***Algic:*** Yurok *tot* (ad.) F [Kroeber 1917, Gifford 1922], Wiyot *(yi)da* F [Gifford 1922], Cree *no°hta°wiy* F [Hockett 1964], Ojibwa *nin dede* F [Trautmann & Barnes 1998], Arapaho *(n)a'ta`* D [Eggan 1975], Gros Ventre *(ne)-tha'-na* F, FB, *(n)atau* D, *(na')-thă-hă* B+ [Morgan 1871], St Francis Abenaki *(n)dada'n* F, *(n)dadani°'s* stepfather [Speck 1918], Malecite *(n)dada'd* F [Speck 1918], Passamaquoddy *(n)dada'd* F [Speck 1918], Shawnee *(no)-thä* F, FB, *(n')-tha-thä'* B+ [Morgan 1871], Kickapoo *(no)-thä* F, FB, *(ni')-tha-thä'* B+ [Morgan 1871], Minitaree *tä-ta'* F, FB [Morgan 1871], ***Mosan:*** Okanagan-Colville *t'aʔt'úpaʔ* (ad. & ref.) GdGdPt, GdGdCh [Mattina & Jack 1992], ***Mosan:*** Nass River *dä°t* (ad.) FZ [Sapir 1920], ***Wakashan:*** Makah *tata* F [Gerzenstein 1994], Nootka *ta-na* S [Mozino 1970], **Proto-Tsamosan:** *tát'a* **PtB** [Kinkade 1992], Upper Chehalis *t'át'-ns* his uncle [Kinkade 1992], Lower Chehalis *táʔt'* uncle [Kinkade 1992], Quinault *tátaʔ* uncle [Kinkade 1992], **Keresiouan:** ***Keresan:*** [Hawley 1950], Santo Domingo *(s'á)t'aó* MM (ego f) [Hawley 1950], Cochiti *da'o* MM (ego f) [Hawley 1950], Santa Ana *(sa)D´ao'* MM (ego f) [Hawley 1950], San Felipe *(s'a')t'ao´* MM (ego f) [Hawley 1950], Acoma *(sta)diau`* GdM (ego f) [Hawley 1950], ***Proto-Siouan:*** *atí* ~ *tatí* **F, FB, MZH** [Matthews 1959], Catawba *táti* GdF [Speck & Schaeffer 1942], Mandan *át* (ref.), *taté* (ad.) F, FB, MZH [Matthews 1959], Hidatsa *ate* (ref.), *taté* (ad.) F, FB, MZH [Matthews 1959], Assiniboin *adé* (ad. & ref.) F, FB, MZH [Matthews 1959], Santee *até* (ad. & ref.) F, FB, MZH [Matthews 1959], Teton *até* (ad. & ref.) F, FB, MZH [Matthews 1959], Winnebago *hiʔą́c* (ref.) F , *jaají* (ad.) FB+ [Matthews 1959], Iowa *dáde* (ad.) FB- [Matthews 1959], Omaha *dắde* (ref.), *dadi* (ad.) F, FB, MZH [Matthews 1959], Kansa *yáje* (ref.), *dáje* (ad.) F, FB, MZH [Matthews 1959], Quapaw *dắte* (ref.) F, FB, *táte* (ad.) F, FB, MZH [Matthews 1959], Osage *dắji* F, FB [Matthews 1959], Tutelo *át* (ref.), *tát* (ad.) F, FB, MZH [Matthews

1959, Speck & Schaeffer 1942], Biloxi *ádi* (ref.), *táta* (ad.) F, FB+, *aduwó* (ref.) FB+, *ácki* (ref.) FB– [Matthews 1959], Ofo *atí* (ad. & ref.) F [Matthews 1959], ***Caddoan:*** Wichita *dada* F, *da'tasiwatså* FB+, *da'tasikitså* FB- [Taylor 1963, Spier 1924], ***Iroquoian:*** Eastern Cherokee *(gi)dada* F, FB [Eggan 1937], **PROTO-PENUTIAN:** ***tata* F, FB, Washington:** Chinook *-ta* ~ *tata* MB [Boas 1904], **Oregon:** Takelma *xdā-* FB, *t`ad* FZ [Sapir 1907], **Plateau:** Northern Sahaptin *tút* F [Aoki 1963, Jacobs 1932], Nez Perce *tóót* F [Aoki 1963], **California:** Nomlaki *dan* F [Goldschmidt 1951], Northern Wintun (Shasta County) *tata* (ref.) F [Gifford 1922], Southeastern Wintun *dantce* F, FB, *tai* GdCh [Gifford 1922], Southwestern Wintun *dantce* F, FB, *tai* GdCh [Gifford 1922], Central Wintun *dan* F [Gifford 1922], Northwestern Wintun (Trinity County) *tata* F [Gifford 1922], Southern Maidu *de* F [Gifford 1922], Yawelmani Yokuts *tuta* WMDCh (ad.) [Gifford 1922], Yaudanchi Yokuts *(na) tet* F, *t'uta* MM [Kroeber 1917], Southern Miwok *tatci* B+, *tete* Z+, *ate* cousin [Gifford 1922], Central Miwok *tatci* B+, *ete* FM, *tete* Z+ [Gifford 1922], Plains Miwok *tata* FB, MZH, *ataci* B+, *ati* B– [Gifford 1922], Lake Miwok *tata* FB–, MZH–, *ata* B+ [Gifford 1922], Coast Miwok *tata* FB–, *ata* B+ [Gifford 1922] , **New Mexico:** Zuñi *tachchu* F, FB [Schneider & Roberts 1956], **Gulf:** Atakapa *hitēt* F [Swanton 1919], Tunica *tca* GdPt, GdCh, *tate* B, Z [Swanton 1919], Chitimacha, *ʔa:tipu* GdPt *ta°t'* B [Swanton 1919, Haas 1939], Coast Yuki *te* Pt [Gifford 1922], Wappo *tsatta* MMB [Gifford 1922], Natchez *tatá* (ad.) F, *dedex* GdF, *atáx* Z+ [Swanton 1928], Alabama *tata* F, *tatåsi* FB [Swanton 1928], Koasati *tata* F, *tatåsi* FB [Swanton 1928], **Mexican:** Huave *téāt* F [Romney Kimball 1967], Totonac *tlat* F, *tanat* GdCh [Radin 1931], Ayutla dáta F [Beals 1945], Tetontepec táta F [Beals 1945], Juquila táta F [Beals 1945], Quintana teit F [Beals 1945], Mixe teit F, *taac* M [Radin 1931], Sierra Popoluca *tʔanaa* F, *tačiʔna* GdF [Romney Kimball 1967], Zoque *haata* ~ *tataj* F [La Grasserie 1898, Radin 1931, Romney Kimball 1967], Huastec *at mim* B+, *atatal* B-, *atic* Ch (ego m.), *tam* Ch (ego f.) [Radin 1931], Maya *atan* W [Radin 1925, Eggan 1934], Lacandon *tet* F [Boremanse 1979], Tzeltal *tat* ~ *tata* F, FB, MB, FFB, *tat xun* FB [Romney Kimball 1967, Sousberghe & Robles Uribe 1962], Tzotzil *tot* F, MZH, *untot* FB [Romney Kimball 1967, Schuller 1924-25], **HOKAN: Northern:** Karok *atic* FPt, *tat* M [Gifford 1922], Shasta *ata* (ad.), *ati* (ref.) F [Gifford 1922], Achumawi *atun* B– [Gifford 1922], Atsugewi *tata* F [Gifford 1922], Yana *dāt`i* (ref.) Ch [Sapir 1918*b*], Eastern Pomo *tsetsa* (ad.) MB, *dah* ZCh (ego m) [Kroeber 1917], Northern Pomo *data* (ad.) W, *ate* (ref.) M [Gifford 1922], Southwestern Pomo *tatan* MF, *tete* M [Gifford 1922], Southern Pomo *tete* M [Gifford 1922] , **Washo:** Washo, *at'u* B+, *da* MB [Kroeber 1917], Salinan-Chumash, Ynezeño Chumash *ta* MB [Gifford 1922], **Seri-Yuman:** Kamia *(in) tal* M [Gifford 1922], Southern Diegueño *(in) tat* F [Gifford 1922], Northern Diegueño *(in) tat* F [Gifford 1922], **Coahuiltecan:** Coahuilteco *t'anague* F, *t'atal* B+ (ego m), *tal* Z+ (ego f) [Romney Kimball 1967], **Tequistlatecan:** Tequistlatec *tatawélo* (ref.) GdF [Turner & Olmsted], **PROTO-CENTRAL AMERIND:** ***tata* ~ *ta* F, Kiowa-Tanoan:** Tewa *tata* F, FB, B+ [Harrington 1912], Hopi-Tewa *tádah* F [Dozier 1954], Kiowa *to'* F, *t'ạ* GdM [Lowie 1923], Taos *titlǎ* ad.) F [Trager 1943], Picuris *ʔatlǎ* (ad.) F [Trager 1943], Isleta *tlata* e 'my F' [Trager 1943], Sandia *(ʔịn) talte* F, [Trager 1943], **Proto-Uto-Aztecan:** ***tata* ~ *ta* F, *tati* ~ *taha* MB** [Miller 1967, Shimkin 1941], Northern Paiute *atsi* MB [Kroeber 1917], Northeastern Mono *atsi* MB [Gifford 1922], Southeastern Mono *ada* HZCh [Gifford 1922], Western Mono *ada* HZCh [Gifford 1922], Battle Mountain Shoshone *ada* MB [Ives 1998], Comanche *aʃa* MB, FZH [Ives 1998], Kitanemuk *ta* MB [Gifford 1922], Serrano *-tar* ~ *tad* MB–, FZH [Miller 1967, Shimkin 1941, Gifford 1922], Luiseño_*tash* MB [Kroeber 1917], Cahuila *tata* F, *taas* MB [Miller 1967, Shimkin 1941, Gifford 1922], Cupeño *tas* MB [Gifford 1922], Hopi *taʔta* F, *-táha* ~ *tatal* MB– [Miller 1967, Shimkin 1941], Pima *tatal* MB, *taʔal* M [Parsons 1928], Tepehuan *tatali* MB, *dada* M [Shimkin 1941, Radin 1931], Northern Tepehuan *tatáli* MB– [Miller 1967], Southern Tepehuan *ʔin-tát* 'my F', *ʔin-tatal* my FB+, MB+ [Miller 1967], Tepecano *tari* MB [Shimkin 1941], Tarahumara *tata* (ego f.) F, *date* MB [Miller 1967, Shimkin 1941], Yaqui *taáta* FB [Miller 1967, Shimkin 1941], Cora *tah'ta* F, *ni-táata* my F, *titata* aunt [Radin 1931, Kimball Romney 1967], Aztec (Nahuatl) *tatli* ~ *teetaa-t* F, *tlatli* FB, *ta'li* MB [Shimkin 1941, Radin 1925, Miller 1967], Papago *tátal* MB–, *tahtali* MB [Miller 1967, Shimkin 1941], Varohio *táʔatái* FB [Miller 1967], Oto-Manguean, Otomi *(na)-ta* F [Radin 1931], Mixtec *ta* F [Jaime de Angulo 1925], Chocho *ta* F [Jaime de Angulo 1925], Cuicatec *tshiʃa* F [Jaime de Angulo 1925], Mazatec *tsa* B+ [Jaime de Angulo 1925], Chatino *t'a* B+ [Jaime de Angulo 1925], **CHIBCHAN-PAEZAN: Chibchan:** Tarascan *tata* F, FB [Radin 1925], Yanomami *tʰatʰəyə* ZD [Lizot 1971], Cuna *tata* F [Dymeley Prince 1913], Cagaba *jate* F [Gawthorne 1985], **ANDEAN: Quechuan:** Modern Quechua *tatay* F, FB [Webster 1977], **EQUATORIAL-TUCANOAN: Macro-Tucanoan:** West Nambikuara *taáta* S [Lévi-Strauss 1948], **Equatorial:** Emerillon *tamutsi* [Hurault & Frenay 1963], Oyampi *tamu, tata* Ch [Hurault & Frenay 1962], Guarani *tâ'* W [Lafone Quevedo 1919], Terena *ta'ata* (ad.). F, FB [Oberg 1948a], Goajiro *aši* F, FB, MZH [Wilbert 1958], Arawak (Lokono) *itti* F, FB, MB [Kirchoff 1931-32], **GE-PANO-CARIB:** ***Macro-Carib*:** Witoto *aitai* M (F?) [Murdock 1936], Trio *tamu* FF, MF [Rivière 1966], Wayana *tamo* GdF [Hurault 1961], Baikairi *tago* MF, *tako* FF [Oberg 1948b], Ye'cuana *áida* FM [Wilbert 1958], **Macro-Panoan:** Mayoruna *dada* distant brother (ego m), *tita* M, MZ [Fields & Merrifield 1980], Black Carib *da* M (affectionate) [Solien 1960], Bari *atagda* F, H [Pinton 1965], ***Macro-Ge*:** Toba *ita'a* (ref.), *taxade* (ad.) F [Miller 1966], Chulupi *tata* F [Wicke & Chase-Sardi 1969]

AUSTRALIAN: NON-PAMA-NYUNGAN: Diverse: Gunwinyguan: Rembarrnga *ta-kun* ZS, ZD [Warner 1933], Ngalakan *dudu* FF [Merlan & Heath 1982], **West Barkly:** Wambaya *ita* HF (ego f) [Spencer & Gillen 1904], **Daly:** Maringarr *it:a* F, FB, *tamie* MF [Scheffler 1978], **PAMA-NYUNGAN: Paman:** Wudhadhi *inata* FB, *ätiθa* MF [McConnel 1959], Tjungundjji *naita* F, FB, *taiyi* MF [McConnel 1959, Thomson 1972], Ngerikudi *naita* F, *tāti* MF, [McConnel 1959], Linngithigh *nītag* F, *tī* MF [McConnel 1959], Ngkoth *tāta* F, *tai* MF [McConnel 1959], Yinwum *tāta* F, *tyīētyi* MF [McConnel 1959], Tepiti *tāta* F, *tītī* MF [McConnel 1959], Aritinngithigh *tyan* F, *tyi* MF [McConnel 1959], Awngthim *nait* F, *taiyi* MF [McConnel 1959], Mbiywom *tya'* F, *tyīētyi* MF [McConnel 1959], Ntrangith *nīt* F, *te'* MF [McConnel 1959], Wik Munkan *naitya* MF, SS, *tata* DH (ego m.) [McConnel 1934, Thomson 1972], Umpila *tata* MB–Ch, FZ–Ch [Thomson 1972], Gogo Mini *athim* F, *atheem* FF, *athil* B+ [Palmer 1884], **Yuin-Kuric:** Ngeumba, *thathi* Z+ [Mathews 1905], **Wiradhuric:** Gamilaraay *daiadi* B [Ridley 1875], **Ngarinyeric:** ŋaiyau (Ngayawung?) *(ng)atta* GdF [Radclifffe Brown 1918], **Karnic:** Pitta Pitta *tĭtĭ* B [Roth 1897], Arabanna *taru* WF [Elkin 1938], Wonkonguru *taru* WF [Elkin 1938], Pidalpa *taru* WF [Elkin 1938], Yandruwandha *taru* WF [Elkin 1938], Yaurawaka, *taru* WF [Elkin 1938], Dieri *taru* WF [Elkin 1938], **Kalkatungic:** Kalkatungu,*tâ-pō* B [Roth 1897], **South-West:** Kariera *tami* MF [Radcliffe-Brown 1913], Ngaluma *tami* MF [Radcliffe-Brown 1913], Marthuythunira *tami* MF [Radcliffe-Brown 1913].

INDO-PACIFIC: ANDAMANESE: Akar-Bale *da* ad. F, elder [Radcliffe Brown 1933], **TASMANIAN:** *tatana* F [Roth 1890], **TRANS NEW GUINEA:** Oksapmin *ita* F [Perey 1975], **Main Section:** Selepet *ata* B+ [McElhanon 1968], Komba *âtâ* (ad.) B+, Z+ [McElhanon 1969], Kamano *tata`* FF, SS, SD [Berndt 1954], Siane *ata(nefo)* my Z+ [Salisbury 1962], Fore *a'tai`* FF, SS, SD [Berndt 1954], Melpa (Mbowamb) *ta* (ad. & ref;), *wuəta* (ad.) F, FB, MZH, Ch, *ata* (ad. & ref.) FZ, BCh [Strathern 1980, Brandewie 1974], Kutubu *taua* GdF [Williams 1941], Telefomin (Telefol) *áatúm* ~ *áatím* 'my F', *áataál* 'my FF' [Healey 1962], Kukukuku (Manki) *atfo* FF, MF, *atfe* FM, MM [Blackwood 1978], Kukukuku (Nauti) *ato* FB *dado* MB [Blackwood 1978], Konda Dani *aat* HB, ZH [O'Brien 1980], Maraisi *tato* Ch [Peckham 1981], Isirawa *täta* F, FB– [Erickson 1976], Kapauku *(n)aitai* F, *(n)aita* FB, [Pospisil 1980], Moni, *aita* ~ *mita* F, *tata* FZ [Van Nunen 1980], Orokaiva *tata* FZ [Williams 1930], **Madang - Adelbert Range:** W(Y)angullam *atu* HZ (ego m) [Ploeg 1980], **Teberan:** Daribi *ida* M, MZ [Wagner 1980], **Transfly – Bukala River:** Mawata (Kiwai) *áida* M [Landtman 1927], **Northern:** Iafar *eteeg* (ad.) FB+, *atôk* (ad.& ref.) FB–, MH, *ata* (ad.) GdM, *at* MH, [Juillerat 1986], Edopi *ida* B– [Hwa Kim 1997], Sikaritai *atá* GdM [Martin 1997], **Nimboran:** Kaure *ade* M, *ato* MZ [Dommel 1997], **SKO:** Vanimo *adei* GdPt [Thomas 1941], **TORRICELLI:** Shortlands (Alu) *tete* GdM [Rivers 1914], **SEPIK-RAMU:** Kwoma *atokw* MF, MM [Bowden 1983], Hewa *aita* ~ *tai* F, FB [Steadman 1980], Banaro *mu-táta* his, her WF, *mu-áta* his,her StF [Thurnwald 1916], **EAST PAPUAN:** Buin *taitanu* B+ [Rivers 1914], Santa Cruz (Graciosa Bay) *tute* F, FB [Davenport 1964], **UNCLASSIFIED,** Kaimbi *toat* FF , *ata* FZ [Nelson 1980], Jate *tɔ̄tɔ̄* FF, SS, SD [Berndt 1954], Wagamb *dāp* F [Berndt 1954], Kuno *dāp* F [Berndt 1954], Nangamb *dāp* F [Berndt 1954.

Kin Tongue

A Study of Kin Nursery Terms in Relation to Language Acquisition With a Historical and Evolutionary Perspective

by Pierre J. Bancel* and Alain Matthey de l'Etang**

Abstract: Globally distributed kinship terms such as *(M)AMA, (P)APA, (T)ATA, (N)ANA, (K)AKA,* or *(J)AJA* are commonly assumed to be "nursery words" created by children. Here we show that nursery words have a double nature. On the one hand, they belong to the adult lexicon; on the other hand, they are adapted to the phonetic and semantic abilities of children as well as to their communicative needs. As fundamental elements of the general lexicon of the languages they belong to, they are transmitted from generation to generation. The phonetic and semantic properties of kin "nursery" terms, together with the conditions of speech acquisition, do not result in massive, convergent lexical innovations by babies among the world's languages – not a single case of which was ever documented in the numerous studies on language acquisition. Instead, they explain both the exceptional longevity of these words and their frequent irregularity with regard to sound laws. Then, we show that these words must have been the first articulated words in a human mouth, a claim which is subject to experimental demonstration.

1. PRESENTATION

It is widely assumed by comparative linguists that kinship terms like *(M)AMA, (P)APA, (T)ATA, (N)ANA, (K)AKA, (J)AJA*, which are very widely encountered among the world's languages, are "nursery words". In their opinion, words belonging to this category are spontaneously created by children in the early stages of language acquisition. Thus, contrary to ordinary, inherited words, the series of such similar forms bearing similar meanings would not testify for a genetic link between these words, still less between the languages in which they are found.

Even deep-time comparatists frequently hesitate to validate comparative series made of such kin terms. Nevertheless, they observe that in many particular macrofamilies and phyla, their particular forms and meanings are highly coherent between the member languages and groups – *i.e.* they do not display more symptoms of random variation than other word series, contrary to what would be expected in the

---

* Association d'études linguistiques et anthropologiques préhistoriques (AELAP, Paris, France), and Société de linguistique de Paris (France); mail to pierrejbancel@hotmail.com.

** AELAP (Paris, France), and Skidmore College (Saratoga Springs, NY).

case of spontaneous formations. For this reason, they often invite them in their reconstructed proto-languages, with the special mention that they are nursery words – inferring that their cognates would thus be less reliable than others for postulating and *a fortiori* reconstructing the concerned proto-word, not to speak of establishing the validity of the proto-language they are supposed to descend from. As it goes, such etymologies are at best considered as by-products of the comparative work.

Given the global distribution of several of these words (Ruhlen 1994*a*, Bengtson & Ruhlen 1994), which moreover exhibit an unrivalled phonetic and semantic coherence (Bancel & Matthey de l'Etang 2002, Matthey de l'Etang & Bancel this volume), it is of primary importance to assess their real comparative status. This implies to delve in some detail into the arguments presented by those who think that these words are of little or no comparative-historical value. Matthey de l'Etang & Bancel (this volume, section 4) do justice to the uncomparative "nail-and-coffin" method advocated by Trask. Other arguments are centered on the early stages of language acquisition by children – a subject about which innumerable studies have been conducted in the last forty years. At the same time, no comprehensive reappraisal of kin nursery words in a global, historical perspective was done since Murdock's (1959) and Jakobson's (1960) famous papers on the question of *"Why Mama and Papa?"* were published.

The present study will deal with the phonetic and semantic aspects of kin "nursery words" with regard to the conditions of early speech acquisition. On the one hand, we will show that their phonetic form, as is (rightly) claimed by those who (wrongly) think that these words must have resulted from independent innovations, is highly constrained by the phonetic abilities of the nursling at the moment he learns to speak. On the other hand, as already observed by Jakobson (1960) – though in a pretty elusive fashion –, their particular meaning is always taught to the child by the adults around, a fact confirmed by all the observations of language learning that have been conducted since.

We will also observe that childish words – words displaying deviant forms and/or meanings with regard to adult language – are progressively corrected by the child and, far from getting adopted into the adult language, soon fall out of use and sink into oblivion. In contrast, kin nursery words are kept in continuous use by speakers through their entire life, and their meaning as well as their phonetic shape are transmitted from generation to generation. Consequently, the kin terms endowed with a nursery phonetic form, contrary to childish words, must be considered members of the general lexicon of the languages they belong to.

This fact has two important implications for historical linguistics. In the first place, these words are liable to linguistic comparison, and may in principle be traced back to ancestral proto-languages at any taxonomic level their distribution among human languages might justify. We will conclude that kin terms endowed with a nursery phonetic form, far from being independent innovations, are in most cases the trace of very old words that belonged to the Proto-Sapiens lexicon, as their present global distribution doubtlessly testifies for. Thus, they strongly contribute to assess the validity of the Proto-Sapiens language theory, in the line of the work of Trombetti (1905), Greenberg (1976), Bengtson & Ruhlen (1994), and Ruhlen (1994*a*).

Secondly, phonetically articulate language must be much older than *Homo sapiens*. We will show that the conditions of speech acquisition by children substantiate our earlier hypothesis (Bancel & Matthey de l'Etang 2002) that kin nursery terms, beyond the 50,000 to 100,000 years old Proto-Sapiens language, must have been the very first phonetically articulate sound strings ever uttered by a human mouth. However unexpected it may seem, we will also show that this hypothesis not only is testable, but was successfully tested at least twice in the first half of the XXth century.

2. HISTORICAL BACKGROUND

2.1. THE MURDOCK-JAKOBSON'S HYPOTHESIS

2.1.1. From canonical babbling to first words

At the turn of the 1960's, a joint effort of the famous anthropologist George Peter Murdock and the no less famous linguist Roman Jakobson asked the question *"Why Mama and Papa?"* (Jakobson 1960). These two words were already known, as Murdock (1959) put it, to be widely distributed in the world's languages *"regardless of their historical relationships."* Murdock gathered two lists of vernacular terms for 'father' and 'mother' respectively in more than 500 languages from all the continents and belonging to various language families. In the first list, he observed a very high proportion of words built up with a labial or dentalveolar oral stop consonant [p, b, t, d] and a low unrounded vowel [a, ə], quite often with partial or total reduplication, thus close to the canonical forms *(P)APA ~ (T)ATA*. In the second list, he observed an equally high proportion of *(M)AMA ~ (N)ANA*-like words. According to Murdock, these forms would witness to the replacement of *"standard parental terms* [that had] *become phonetically and morphologically modified in consequence of the normal process of linguistic change,* [and had thus become] *difficult for very young children to pronounce. Under such circumstances, simpler nursery forms tend to appear – carved, so to speak, out of infant babblings under parental encouragement."*

The babblings alluded to by Murdock refer to a well-known stage in the development of babies. Generally between 6 and 9 months, some time before they utter their first real words (around 11-12 months), children go through a "canonical babbling" period where they spontaneously utter basic reduplicating syllable sequences *ma-ma-ma, pa-pa-pa, ba-ba-ba, na-na-na, ta-ta-ta, da-da-da, ka-ka-ka*, using predominantly stop consonants and particularly labials [p, b, m] (Oller 1980).

Jakobson (1960) offered a detailed explanation to these facts, in establishing a link between kin terms and the children's early syllabic vocalizations. A good part of his paper consists of sharp insights into the phonetic nature and meaning of these kin words, which are in many respects the simplest and most natural words for a child to learn and to say, both phonetically and semantically – a matter to which we will return below. Then, having explicitly taken for granted that the languages of Murdock's sample were *"historically unrelated,"*[1] Jakobson proposed that many of the *MAMA* words had emerged independently from the nasal murmur of the suckling baby. The nursling would create a spontaneous, "auto-Pavlovian" association between his own nasal vocalizations and the mother and food. He would repeat it between meals as an *"oral, particularly labial release" – i.e.* as *ma-ma-ma* – to express the *"desire to eat,"* and by extension as a general *"expression of discontent."*

2.1.2. The hidden legacy

As a final step, however, Jakobson states that *"children, being prompted and instigated by the extant nursery words, gradually turn the nasal interjection into a parental term and adapt its expressive make-up to their regular phonemic pattern"* – which means that children learn the *MAMA*-like words from the adults around them. Jakobson thus discreetly reintroduces a historical dimension in the acquisition of the *MAMA* words. Is not a word, whose meaning and phonetic shape are learned by the child from the elder speakers as a part of his maternal language, exactly what linguists call an inherited word?

Furthermore, what happens with a child in a given generation must have happened with his parents when they were babies themselves, as well as with his parents' own parents in their childhood, and so on back in time and generations. Accordingly, the global distribution of these words should have led Jakobson to the unacceptable assumption of an ancestral lexicon, common to the majority of the world's languages and language families. This is probably what prevented him to remark that the *"extant nursery words,"* in order to "exist" for the baby, have to be spoken by speakers who themselves had to learn them in their own childhood.

It is worth noting here that the "canonical babbling" stage is commonly regarded by scholars as a period of phonetic training. A *ma-ma-ma* sequence is made of vowels and consonants, after all, and exhibits an articulate phonetic form. With regard to the meaning of children's babblings, the successive semantic interpretations enumerated by Jakobson do not go beyond the expression of immediate feelings and desires of the child, as many animal vocalizations do. Self-centered as they are, they do not cross the barrier of designation, *i.e.* they do not refer to an individual object from the outside world. The child will come across this barrier only in a second stage, several months later, with the appearance of his first real words.

---

[1] Jakobson thus went a step further than Murdock, who contented himself with *disregarding* their historical relationships. Even if one accepts the common opinion of linguists at the time – which still prevails today among many of them – Murdock's wording is far more accurate, since it is impossible to show that languages are not related. The only possible negative conclusion of a comparison between languages is that it is impossible to show whether they are related or not.

Finally, there is an obvious contradiction between Murdock and Jakobson – even though they worked in close connection on this subject. Murdock claims that kin nursery terms are *"carved"* by the child to replace *"standard parental"* ones having become difficult for the child to pronounce. This carving seems incompatible with Jakobson's analysis, according to which the child needs an *"extant nursery word"* of the same form and meaning to finally *"turn* [his] *nasal interjection into a parental term."*

With regard to the global distribution of the *MAMA* words, the Murdock-Jakobson's explanation was thus getting into a dead end. Nevertheless, the first steps of Jakobson's reasoning, which associated a series of subjective – not referential – meanings to the babbling nursling's syllable sequences, could give the impression that *MAMA* words were somehow independently recreated by every child. Even though this assumption was unsupported by any documented evidence, nor was explicitly claimed by Jakobson himself, it had the advantage to allow linguists to disregard the embarrassing fact that all *MAMA* (as well as *PAPA*) words are inherited from earlier generations. This inheritance would have ultimately led to the heretic hypothesis of a historical link between all languages. The first-rank reputation of the two authors did the rest, and a simplified interpretation of Jakobson's answer to *"Why Mama and Papa?"* as words spontaneously arising among babies of the world was since taught to generations of students in linguistics as the commonplace explanation of their global distribution.

2.2. GLOBAL KINSHIP ETYMOLOGIES

Thirty-odd years later, the publication by Bengtson & Ruhlen (1994) and Ruhlen (1994*a*) of some 30 global etymologies showed that a part of the basic vocabulary of languages from all of the human families were traceable to a single, ancestral lexicon. There is no linguistic method allowing to date proto-languages with any reasonable accuracy beyond very few millennia back into the past. However, Proto-Sapiens may be dated *a minima* by archaeological means to the period comprised between 50,000 years BP and 100,000 years BP, *i.e.* when Sapiens humans first got out of Africa: any word having appeared after this event is unlikely to have spread over all the language families.

Using the same method of multilateral comparison, originally devised to classify the world's languages into macrofamilies (Greenberg 1958, 1971, 1987, 2000-2001), we undertook a global comparison of vernacular kinship terminologies, of which we collected 1,080 to the present day – *i.e.* some 15% to 20% of the known languages –, which cover all the continents and languages families. To this number add partial kinship data from several hundreds of other languages.

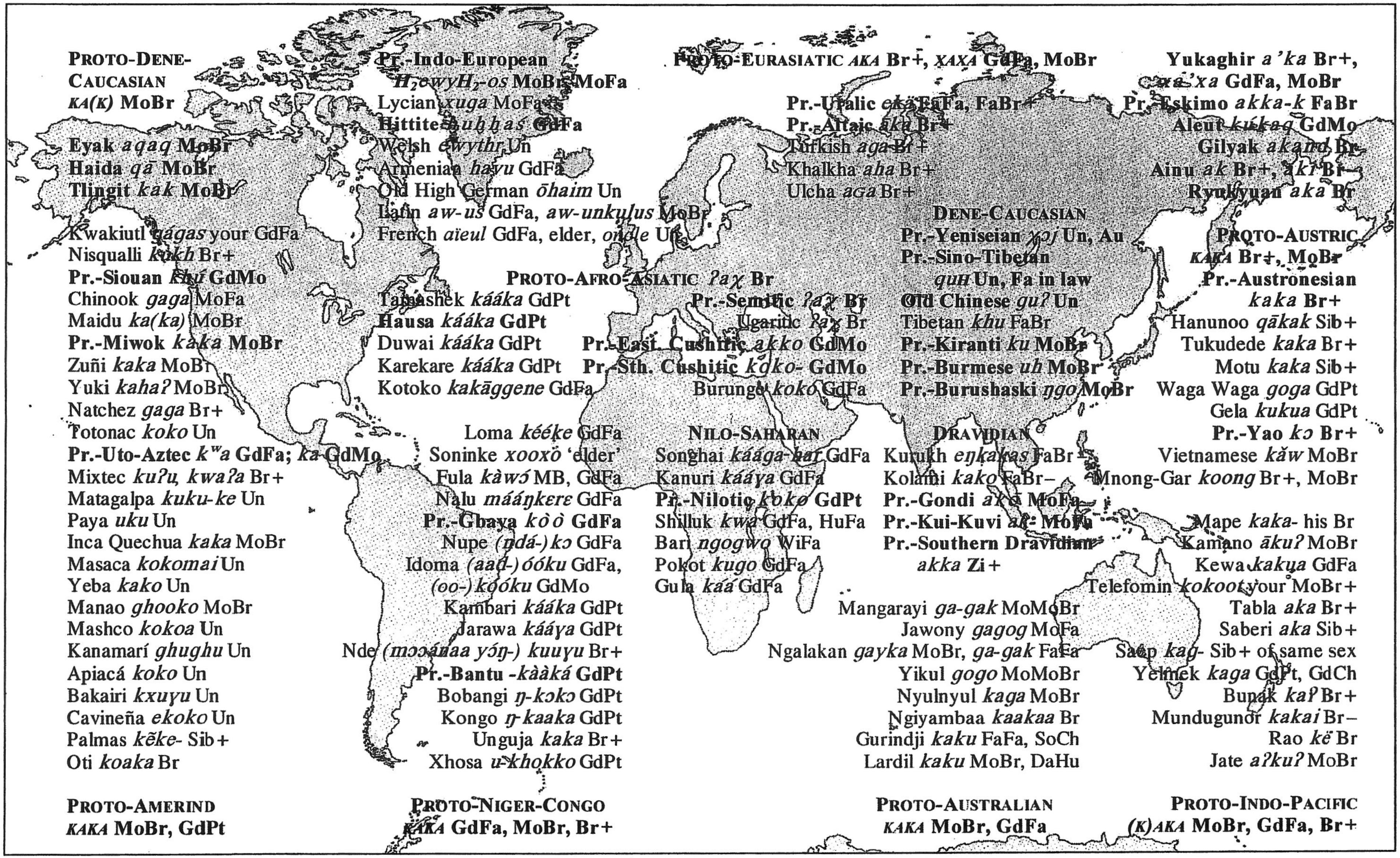
First focusing on the etymon *(K)AKA* 'elder brother, mother's brother, grandfather' (Bancel & Matthey de l'Etang 2002), originally brought to light by Ruhlen (1994*a*), we showed that its distribution is the largest ever documented for a global lexical root. It is clearly attested in over 60% of the 450 kinship terminologies we had accessed then, belonging to 10 out of the 12 to 15 known linguistic phyla, and, within these ones, to dozens of families and subfamilies. We also observed that its reflexes display a striking degree of phonetic preservation and of semantic coherence (see Map 1). As expected, several other global kinship terms also emerged from this comparison, among them the famous *(P)APA* (Matthey de l'Etang & Bancel 2004) and *(M)AMA* – which do not mean only 'father' and 'mother'[2] –, as well as *(T)ATA, (N)ANA,* and *(J)AJA.* All these series display the same characteristics as *(K)AKA,* as far as distribution and preservation is concerned (see Map 2).

With regard to *PAPA*-like words, Jakobson (1960) seemingly assumed some kind of "default" assignment of the oral bilabial stop [p] to the father, as the respective counterparts of the nasal bilabial stop [m] and the mother. As already observed by Ruhlen (1994*a*), this explanation fails with *(K)AKA,* which is clearly distinct of *(P)APA* and *(T)ATA* as it never means 'father,' while *(P)APA* and *(T)ATA* words are only exceptionally used for the mother's brother. It turns out that the phonetic differences between [p, b, t, d] and [k, g] are unlikely to have any symbolic oppositive relation to 'father' and 'mother's brother' respectively, while being all compatible with 'elder brother' and 'grandfather.' Conversely, the three meanings of *(K)AKA,* 'elder brother,' 'mother's brother,' and 'grandfather,' which cover together three quarters of the languages of Bancel & Matthey de l'Etang's (2002) sample, delineate a general meaning of 'male elder on the mother's side', while the four meanings of *(P)APA* and *(T)ATA,* 'elder brother,'

---

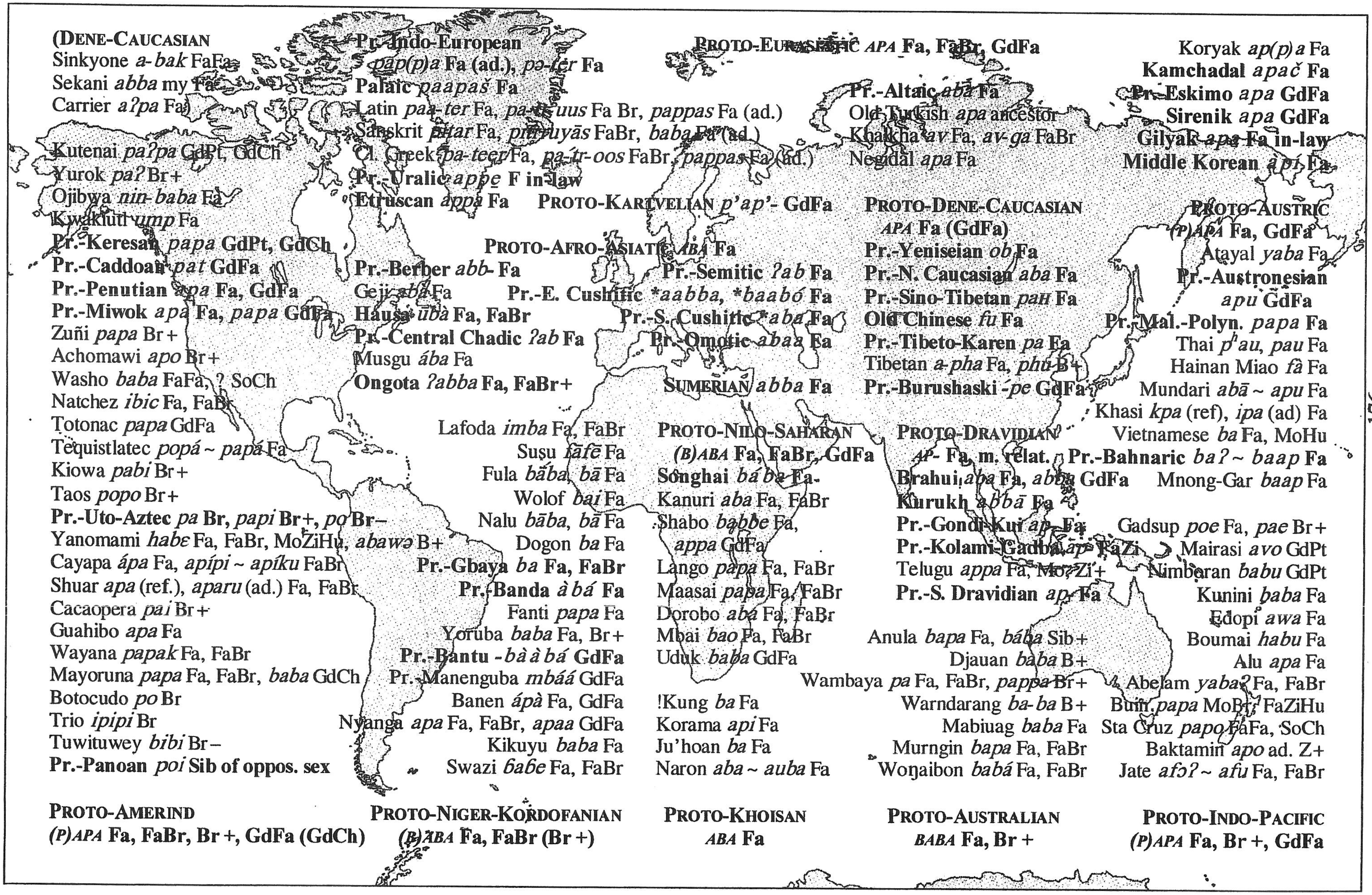
[2] It was a major weakness of Murdock's study to exclusively address the phonetic forms of terms meaning 'father' and 'mother.' Needless to say, the comparative method demands to take into account all similar forms with similar meanings.

Map 1. The Proto-Sapiens word *(K)AKA* ‘male elder on the father’s side’ around the world


PROTO-DENE-CAUCASIAN
KA(K) MoBr
Eyak aqaq MoBr
Haida qā MoBr
Tlingit kak MoBr
Kwakiutl gágas your GdFa
Nisqualli kukh Br+
Pr.-Siouan khú GdMo
Chinook gaga MoFa
Maidu ka(ka) MoBr
Pr.-Miwok kaka MoBr
Zuñi kaka MoBr
Yuki kahaʔ MoBr
Natchez gaga Br+
Totonac koko Un
Pr.-Uto-Aztec kʷa GdFa; ka GdMo
Mixtec kuʔu, kwaʔa Br+
Matagalpa kuku-ke Un
Paya uku Un
Inca Quechua kaka MoBr
Masaca kokomai Un
Yeba kako Un
Manao ghooko MoBr
Mashco kokoa Un
Kanamarí ghughu Un
Apiacá koko Un
Bakairi kxuyu Un
Cavineña ekoko Un
Palmas kẽke- Sib+
Oti koaka Br
PROTO-AMERIND
KAKA MoBr, GdPt
Pr.-Indo-European
H₂ewyH₂-os MoBr, MoFa
Lycian xuga MoFa
Hittite ḫuḫḫaš GdFa
Welsh ewythr Un
Armenian hayu GdFa
Old High German ōhaim Un
Latin aw-us GdFa, aw-unkulus MoBr
French aïeul GdFa, elder, oncle Un
PROTO-AFRO-ASIATIC ʔaχ Br
Tamashek kááka GdPt
Hausa kááka GdPt
Duwai kááka GdPt
Karekare kááka GdPt
Kotoko kakāggene GdFa
Pr.-Semitic ʔaχ Br
Ugaritic ʔaχ Br
Pr.-East. Cushitic akko GdMo
Pr.-Sth. Cushitic koko- GdMo
Burunge koko GdFa
Loma kééke GdFa
Soninke xooxö ‘elder’
Fula kàwɔ́ MB, GdFa
Nalu máánkɛrɛ GdFa
Pr.-Gbaya kòò GdFa
Nupe (ndá-) kɔ GdFa
Idoma (aad-) óóku GdFa,
(oo-) kóóku GdMo
Kambari kááka GdPt
Jarawa kááya GdPt
Nde (mɔɔánaa yɔ́ŋ-) kuuyu Br+
Pr.-Bantu -kààká GdPt
Bobangi ŋ-kɔkɔ GdPt
Kongo ŋ-kaaka GdPt
Unguja kaka Br+
Xhosa u-khokko GdPt
PROTO-NIGER-CONGO
KAKA GdFa, MoBr, Br+
PROTO-EURASIATIC AKA Br+, XAXA GdFa, MoBr
Pr.-Uralic ekä FaFa, FaBr+
Pr.-Altaic āka Br+
Turkish aga Br+
Khalkha aha Br+
Ulcha aga Br+
NILO-SAHARAN
Songhai káága-har GdFa
Kanuri kááya GdFa
Pr.-Nilotic kɔko GdPt
Shilluk kwa GdFa, HuFa
Bari ngogwo WiFa
Pokot kugo GdFa
Gula káá GdFa
DENE-CAUCASIAN
Pr.-Yeniseian χɔj Un, Au
Pr.-Sino-Tibetan
quʜ Un, Fa in law
Old Chinese guʔ Un
Tibetan khu FaBr
Pr.-Kiranti ku MoBr
Pr.-Burmese uh MoBr
Pr.-Burushaski ŋgo MoBr
DRAVIDIAN
Kurukh eŋkakas FaBr+
Kolami kako FaBr–
Pr.-Gondi akō MoFa
Pr.-Kui-Kuvi akā MoFa
Pr.-Southern Dravidian
akka Zi+
Mangarayi ga-gak MoMoBr
Jawony gagog MoFa
Ngalakan gayka MoBr, ga-gak FaFa
Yikul gogo MoMoBr
Nyulnyul kaga MoBr
Ngiyambaa kaakaa Br
Gurindji kaku FaFa, SoCh
Lardil kaku MoBr, DaHu
PROTO-AUSTRALIAN
KAKA MoBr, GdFa
Yukaghir a’ka Br+,
xa’xa GdFa, MoBr
Pr.-Eskimo akka-k FaBr
Aleut kúkaq GdMo
Gilyak akand Br
Ainu ak Br+, aki Br–
Ryukyuan aka Br
PROTO-AUSTRIC
KAKA Br+, MoBr
Pr.-Austronesian
kaka Br+
Hanunoo qākak Sib+
Tukudede kaka Br+
Motu kaka Sib+
Waga Waga goga GdPt
Gela kukua GdPt
Pr.-Yao kɔ Br+
Vietnamese kăw MoBr
Mnong-Gar koong Br+, MoBr
Mape kaka- his Br
Kamano ākuʔ MoBr
Kewa kakụa GdFa
Telefomin kokoot your MoBr+
Tabla aka Br+
Saberi aka Sib+
Saep kag- Sib+ of same sex
Yelmek kaga GdPt, GdCh
Bunak kaʔ Br+
Mundugunor kakai Br–
Rao kë Br
Jate aʔkuʔ MoBr
PROTO-INDO-PACIFIC
(K)AKA MoBr, GdFa, Br+

Some reflexes of the Proto-Sapiens word *(K)AKA* ‘elder male parent in maternal line.’ Meanings are abbreviated as follows: Mo (mother), Fa (father), Pt (parent), Gd (grand-), Zi (sister), Br (brother), Sib (sibling), Da (daughter), So (son), Ch (child), Au (aunt), Un (uncle), Wi (wife), Hu (husband), +/– (elder/younger). Colours indicate languages belonging to the same phylum, whose name comes in boldfaced small capitals; proto-languages and individual languages representing by themselves an important branch within a phylum come in boldfaced lowercase. Location of the phyla on the map approximates their distribution. Sample data from Bancel & Matthey de l’Etang (2002).

Map 2. The Proto-Sapiens word *(P)APA* 'male elder on the father's side'


(DENE-CAUCASIAN
Sinkyone *a-bak* FaFa
Sekani *abba* my Fa
Carrier *a?pa* Fa)
Kutenai *pa?pa* GdPt, GdCh
Yurok *pa?* Br+
Ojibwa *nin-baba* Fa
Kwakiutl *ump* Fa
Pr.-Keresan *papa* GdPt, GdCh
Pr.-Caddoan *pat* GdFa
Pr.-Penutian *apa* Fa, GdFa
Pr.-Miwok *apa* Fa, *papa* GdFa
Zuñi *papa* Br+
Achomawi *apo* Br+
Washo *baba* FaFa, ? SoCh
Natchez *ibic* Fa, FaBr
Totonac *papa* GdFa
Tequistlatec *popá ~ papá* Fa
Kiowa *pabi* Br+
Taos *popo* Br+
Pr.-Uto-Aztec *pa* Br, *papi* Br+, *po* Br–
Yanomami *habɛ* Fa, FaBr, MoZiHu, *abawə* B+
Cayapa *ápa* Fa, *apípi ~ apíku* FaBr
Shuar *apa* (ref.), *aparu* (ad.) Fa, FaBr
Cacaopera *pai* Br+
Guahibo *apa* Fa
Wayana *papak* Fa, FaBr
Mayoruna *papa* Fa, FaBr, *baba* GdCh
Botocudo *po* Br
Trio *ipipi* Br
Tuwituwey *bibi* Br–
Pr.-Panoan *poi* Sib of oppos. sex
PROTO-AMERIND
***(P)APA* Fa, FaBr, Br+, GdFa (GdCh)**
Pr.-Indo-European
***pap(p)a* Fa (ad.), *pə-tér* Fa**
Palaic *paapaš* Fa
Latin *paa-ter* Fa, *pa-truus* Fa Br, *pappas* Fa (ad.)
Sanskrit *pitar* Fa, *pitṛvyās* FaBr, *baba* Fa (ad.)
Cl. Greek *pa-teer* Fa, *pa-tr-oos* FaBr, *pappas* Fa (ad.)
Pr.-Uralic *appe̱* F in-law
Etruscan *appa* Fa
PROTO-KARTVELIAN *p'ap'-* GdFa
PROTO-AFRO-ASIATIC *ABA* Fa
Pr.-Berber *abb-* Fa
Geji *aba* Fa
Pr.-E. Cushitic **aabba, *baabó* Fa
Hausa *ūbà* Fa, FaBr
Pr.-S. Cushitic **aba* Fa
Pr.-Central Chadic *?ab* Fa
Pr.-Omotic *abaa* Fa
Musgu *ába* Fa
Ongota *?abba* Fa, FaBr+
Pr.-Semitic *?ab* Fa
SUMERIAN *abba* Fa
Lafoda *imba* Fa, FaBr
Suṣu *fāfē* Fa
Fula *bā́ba, bā* Fa
Wolof *bai* Fa
Nalu *bāba, bā* Fa
Dogon *ba* Fa
Pr.-Gbaya *ba* Fa, FaBr
Pr.-Banda *àbá* Fa
Fanti *papa* Fa
Yoruba *baba* Fa, Br+
Pr.-Bantu *-bààbá* GdFa
Pr.-Manenguba *mbáá* GdFa
Banen *ápà* Fa, GdFa
Nyanga *apa* Fa, FaBr, *apaa* GdFa
Kikuyu *baba* Fa
Swazi *ɓaɓe* Fa, FaBr
PROTO-NIGER-KORDOFANIAN
***(B)ĀBA* Fa, FaBr (Br+)**
PROTO-NILO-SAHARAN
***(B)ABA* Fa, FaBr, GdFa**
Sônghai *bába* Fa.
Kanuri *aba* Fa, FaBr
Shabo *babbe* Fa,
appa GdFa
Lango *papa* Fa, FaBr
Maasai *papa* Fa, FaBr
Dorobo *aba* Fa, FaBr
Mbai *bao* Fa, FaBr
Uduk *baba* GdFa
!Kung *ba* Fa
Korama *api* Fa
Ju'hoan *ba* Fa
Naron *aba ~ auba* Fa
PROTO-KHOISAN
***ABA* Fa**
PROTO-EURASIATIC *APA* Fa, FaBr, GdFa
Pr.-Altaic *aba* Fa
Old Turkish *apa* ancestor
Khalkha *av* Fa, *av-ga* FaBr
Negidal *apa* Fa
PROTO-DENE-CAUCASIAN
***APA* Fa (GdFa)**
Pr.-Yeniseian *ob* Fa
Pr.-N. Caucasian *aba* Fa
Pr.-Sino-Tibetan *paH* Fa
Old Chinese *fu* Fa
Pr.-Tibeto-Karen *pa* Fa
Tibetan *a-pha* Fa, *phu* B+
Pr.-Burushaski *-pe* GdFa
PROTO-DRAVIDIAN
***AP-* Fa, m. relat.**
Brahui *aba* Fa, *abba* GdFa
Kurukh *abbā* Fa
Pr.-Gondi-Kui *ap-* Fa
Pr.-Kolami-Gadba *ap-* FaZi
Telugu *appa* Fa, Mo?Zi+
Pr.-S. Dravidian *ap-* Fa
Anula *bapa* Fa, *bába* Sib+
Djauan *baba* B+
Wambaya *pa* Fa, FaBr, *pappa* Br+
Warndarang *ba-ba* B+
Mabiuag *baba* Fa
Murngin *bapa* Fa, FaBr
Woŋaibon *babá* Fa, FaBr
PROTO-AUSTRALIAN
***BABA* Fa, Br+**
Koryak *ap(p)a* Fa
Kamchadal *apač* Fa
Pr.-Eskimo *apa* GdFa
Sirenik *apa* GdFa
Gilyak *apa* Fa in-law
Middle Korean *àpí* Fa
PROTO-AUSTRIC
***(P)APA* Fa, GdFa**
Atayal *yaba* Fa
Pr.-Austronesian
***apu* GdFa**
Pr.-Mal.-Polyn. *papa* Fa
Thai *pʰau, pau* Fa
Hainan Miao *fâ* Fa
Mundari *abā ~ apu* Fa
Khasi *kpa* (ref), *ipa* (ad) Fa
Vietnamese *ba* Fa, MoHu
Pr.-Bahnaric *ba? ~ baap* Fa
Mnong-Gar *baap* Fa
Gadsup *poe* Fa, *pae* Br+
Mairasi *avo* GdPt
Nimboran *babu* GdPt
Kunini *baba* Fa
Edopi *awa* Fa
Boumai *habu* Fa
Alu *apa* Fa
Abelam *yaba?* Fa, FaBr
Buin *papa* MoBr, FaZiHu
Sta Cruz *papo* FaFa, SoCh
Baktamin *apo* ad. Z+
Jate *afɔ? ~ afu* Fa, FaBr
PROTO-INDO-PACIFIC
***(P)APA* Fa, Br+, GdFa**

'father,' 'father's brother,' and 'grandfather,' refer to a 'male elder on the father's side' (Matthey de l'Etang & Bancel 2004).

Also, the only languages which might support a suspicion of global borrowing, *i.e.* Western Indo-European languages such as Spanish, Portuguese, English, Russian, and French, lack any *(K)AKA* form that might have given rise to the series of Map 1[3]. Moreover, the complete absence of *(K)AKA* forms from these languages may indeed be regarded as a negative test of Murdock's hypothesis about the spontaneous *"carving"* of kin nursery words by babies. The Proto-Indo-Hittite word *XAXA* 'mother's brother, grandfather' was wiped off by phonetic erosion from Indo-European languages, probably shortly after their split from the Anatolian branch (Hittite), as is attested by the Proto-Indo-European root **au̯-* 'grandfather, maternal uncle, elder, ancestor,' reconstructed on the basis of non-Anatolian languages (Pokorný 1959). And since this 5,000 years old divergence, no *KAKA* kin term of any kind did come back again in a single of the several dozen Western Indo-European languages and dialects – whether Germanic, Romance, Celtic, Baltic, Slavic, Albanian, Greek, or Armenian. Just like any other word, once it is lost, it is for good.

How could one explain, then, the worldwide spread of *(P)APA*, *(T)ATA*, *(M)AMA*, *(N)ANA*, and *(K)AKA* words? In the absence of any sound-symbolic plausible link, in the material impossibility of a global borrowing, and the probability of chance resemblance being infinitesimal, given the exceedingly high proportion of languages and families exhibiting direct or nearly direct reflexes, the only remaining explanation is thus the common inheritance from the Proto-Sapiens language posited by Bengtson & Ruhlen (1994) and Ruhlen (1994*a*).

How is it possible, in this historical perspective, that several words have been preserved for such long time, in so many languages, with so little changes in both their meaning and phonetic form? We think that the properties of the babies' babbling and of the *(P)APA* and *(M)AMA* words, some already described by Jakobson, some others overlooked by him and drawn to light since by other scholars, rather than supporting the unattested spontaneous creation of these words by children in historical times, find their proper place in explaining this long-lasting survival.

3. THE SIMPLEST (AND MOST EFFICIENT) SOUNDS OF SPEECH

3.1. ARTICULATORY SIMPLICITY

As underlined by Lieberman (1992), speaking is one of the most difficult motor activities a human being may perform, because of the exceedingly quick and precise movements successively involved in the articulation of a speech sounds string. However, not all the sounds are equivalent in this respect.

In his phonetic observations about babbling and the *MAMA* and *PAPA* words, Jakobson noted that the articulatory contrast is maximal between a *"consonant with a complete closure in the front of the buccal cavity"* (*i.e.* [p], [b], [m], [t], [d̓], or [n]), and a *"vowel with a wide buccal opening"* (*i.e.* [a]). This contrast appears highly significant in terms of proprioceptive perception and control for the beginner.

From the motor viewpoint, MacNeilage & Davis (1990) observe that a canonical babbling sequence consists in rhythmically opening and closing the mouth by lowering and heightening the jaw. This oscillation of the jaw is involved in all the prelinguistic functions of the mouth such as eating, breathing, biting, or shouting. In addition to the jaw, labial ([p, b, m]) and dental ([t, d, n]) stops and vowel [a] involve other articulators, namely the lips for labial stops, and the tip of the tongue for dentals and vowel [a]. The jaw, the lips, and the tip of the tongue are the parts of the vocal tract which inherited from prelinguistic evolution the greatest degree of motor liberty and of proprioceptive innervation. These properties also contribute to make these articulatory gestures the easiest ones to perform and control.

---

[3] These languages indeed have words ultimately derived from *(K)AKA*, *e.g.* French *oncle* 'uncle' or *aïeul* 'grandfather, ancestor,' Spanish *abuelo* 'grandfather,' English *uncle* (borrowed from French), German *Oheim* 'uncle,' *Opa* 'grandfather,' *Oma* 'grandmother,' which have been made unrecognizable by phonetic drift.

Moreover, both the complete occlusion of stops and the maximal opening of vowel [a] allow much more variation in the muscular strength and precision of the articulatory gesture than for any other speech sound. (Just close your lips very tightly to utter a [p], or press your tongue hard against the alveola behind your teeth to make a [t]: it will however sound like a [p] or a [t] – then, try to do the same for a [s] or a [r]; as to [a], just compare a normal [a] with the kind of "Aaaah" the doctor asks you to say when she wants to look deep inside your throat.) This articulatory robustness is already an advantage for a learner when each sound is considered individually, and becomes still more significant for a sequence of two or more sounds.

3.2. AUDITORY SIMPLICITY

On the acoustic side, Jakobson (1960) noted that the contrast is maximal between vowel [a] and the stop consonants, which correspond respectively to the highest and lowest levels of acoustic energy in the speech flow. Their succession thus offers the optimal auditory contrast to the hearer – and the optimal feedback to the speaker. Now, speech sounds are delivered at the very high speed of some 15 to 25 units per second (Liberman, Cooper, Shankweiler & Studdert-Kennedy 1967). Normal hearers decode them without difficulty, albeit it is about three times the limit speed of 7 (±2) units per second, beyond which modern humans become unable to discriminate non-speech sounds (Miller 1956). Moreover, the specialized brain areas and connections able to process such high-speed auditory flow can do it efficiently only after an appropriate training – *i.e.* learning the concerned language. (Just think how difficult it is, when you start learning a new language as a grown-up, to perceive the sounds you are not used to.) For those discovering their first spoken language, the auditory robustness of vowel [a] and stop consonants must be of primeval importance, too.

3.3. SYLLABIC SIMPLICITY

Finally, as noted by Jakobson, the syllabic structure of both babbling and nursery words is equally primitive. Babbling typically reduplicates the most basic *Ca* in a *CaCaCa* sequence, which is the easiest way to produce an articulate speech flow, using only two sounds (which are themselves the easiest and most efficient ones). Kin nursery words, contrary to babbling, do not essentially occur as a phonetic speech flow but are jointly defined with regard to meaning and the number of phonetic units they contain. They are built according to two schemes: *CaCa* or *aCa*. The first pattern is a reduplication of the basic *Ca*. The second pattern is obtained as soon as the speaker masters the vowel articulation enough to change the position of the articulatory organs in order to produce the consonant and then return to the initial position for the second vowel. As already observed by Jakobson, this is really the easiest way for a beginner to articulate a syllable sequence.

The articulatory, motor, acoustic, and syllabic robustness of vowel [a] and of consonants [p b m t d n] (and to a lesser extent [k g ŋ]) is precisely the reason why these speech sounds are the first ones children regularly perform in the articulated syllable sequences *pa-pa-pa*, *ta-ta-ta*, *da-da-da*, *ma-ma-ma*, etc. Of course, if one randomly "tries" one's articulatory organs in order to make a sound, any human phoneme (and many other sounds) may result. However, when it comes to consistently reproduce a sound, and – which is still more difficult – a sequence of two sounds at will, of course the easiest sounds and sequences must be the first to be mastered. This is exactly what children do.

Furthermore, the near totality of known languages use vowel [a]. In turn, plain oral and nasal stops are not as generally distributed as is vowel [a], but are by far the most widespread consonants among human languages (Maddieson 1984, 1997). This is another clue to the naturalness and ease of the articulation of these sounds.

3.4. CONCLUSION

For babies beginning to learn their maternal language, the phonetic simplicity and efficiency of segments and strings are apparently decisive to master the phonetic articulation. Every baby learns to speak beginning with the same basic, phonetically articulated babbling sequences, for the above-mentioned cogent reasons that are all independent from whatever particular language may be spoken around him.

The constraints bearing on the first phonetically articulated productions of children easily explain why the canonical babbling is universally made of plain stops and open vowels. However, they do not explain by themselves why the most basic sound sequences are so frequently linked, in the world's languages, to the parental terms. As stated by Jakobson himself, the child needs *"extant nursery words"* to finally attach a parental meaning to these sounds.

Between the canonical babbling stage and his first words, the child has gone through a diversified babbling stage (9-10 months), where he has progressively learned to master other sounds than the most basic ones. During this intermediate stage, a progressive convergence with the sound system of his maternal tongue is observed in numerous studies (*e.g.* Buhr 1980, Lieberman 1980, de Boysson-Bardies & Vihman 1991, de Boysson-Bardies *et al.* 1992).

In turn, the discovery of semantic designation occurs around 11-12 months with the baby's first words, themselves quite often consisting of parental terms. This new stage coincides with a partial phonetic regression to sound strings close to the canonical babbling, a fact which was interpreted as the effect of the child's focus on the semantic and cognitive aspect of speech (Bertoncini & de Boysson-Bardies 2000). This phonetic regression, also observed with first words different from parental ones, implies that developing the active symbolic function of language is quite a difficult task for the child. Let us now examine why parents and other close kin are such good objects for children discovering the semantic reference in the course of language primary acquisition.

4. THE SIMPLEST (AND MOST EFFICIENT) NOMINALS

With regard to their meaning, kinship terms are nominals – though not ordinary ones. They are the only nominals referring to beings for which two types of usages exist in modern languages, often corresponding to two series of denominations. Both types exhibit very different semantic properties.

4.1. THE TWO NOUN TYPES

First type nouns are ordinary common nouns, referring to a class of beings, on the basis of a series of cognitive salient features. Such are English *father*, French *père*, or Russian *ot'ec;* these words refer to any male human being having procreated a child, and/or being in charge of his breeding and education. The extraction of such shared features from different individuals demands a high level of cognitive abstraction from the part of the child. This is particularly true if one considers that he has different relations with these individuals, one of them being his father while others are not.

The second type is called *appellative* by the linguists. Such are French *papa,* English *dad,* Czech *tata.* For a given speaker, *papa, dad* or *tata* primarily refers to his own father, and is used to either talk to him or about him to a person with whom one has intimate relations. Though the primary use of these terms is to call the concerned person (hence the cover name of appellatives), they may also function in sentences such as *"Where is Dad?"* or *"Dad has not come yet."* Note that the capital is an accurate typographical mark for the equivalence of the word with a proper noun: only one of the numerous fathers of the world is concerned, and which one is at stake is made evident by the context – most generally, it must be the speaker's father and/or the addressee's.

For a given speaker, an appellative thus refers to a single person (or, for *e.g. grandpa* or *auntie*, to a limited number of persons). Of course, adult speakers know that it may refer, for other speakers, to other particular persons. But a 1-year old child does not need to be aware of it to correctly call his father *papa, dad,* or *tata.* Once he masters the corresponding sound string, he only needs to recognize an individual, belonging to the same species as himself, with whom he has been in regular contact from his birth on. It is obvious that recognizing a familiar individual is cognitively much easier than recognizing him *plus* identifying him as belonging to a determined class of individuals. As expected, children's first kin words are appellative rather than purely referential.

4.2. FROM VOCALIZATIONS TO DESIGNATION

In the first words stage, it was early observed that the appellative use of kin terms is preceded by a so-called "holophrastic" stage (De Laguna 1927). Holophrastic words conveys informations that should be rendered in adult language by a complex sentence, and are generally oriented towards the child's needs or feelings. The clearest documented examples bear on the word meaning 'mum.' Brigaudiot & Danon-Boileau's (2002) devote to this subject a section symptomatically entitled *"Les premiers* maman, *holophrases ou énoncés à un terme"* ["The first *maman,* holophrases or single-termed utterances"]. These authors accurately quote a century-old description: *"The childish* mama, *translated into advanced speech, does not mean the word 'mother' but rather a sentence such as 'Mama, come here,' 'Mama, give me...,' or 'Mama, put me in the chair,' or 'Mama, help me' "* (Stern & Stern 1907).

The holophrastic stage delineates the cognitive way followed by the child from self-centered expressions – as are all of his vocalizations before the first words stage – to true designation. With holophrastic words, the child continues to express his desires and needs. What is new is that this expression is now regularly directed at the parents, and particularly the mother, called by Grégoire (1937) the *"grande dispensatrice"* ('big dispenser'), as a request for help. This repeated association between the mother and the request vocalizations then leads to the appellative meaning, from which the contingent features are progressively eliminated – or at least relegated in the background. We will see below (section 5.2.1) that many languages exhibit another intermediate stage between mere appellatives like those of the child, and purely referential terms like English *father*, French *père*, Russian *ot'ec,* etc.

For the child, parental appellatives are thus the most efficient nouns: they are a general tool for the satisfaction of his needs, in a period where he still entirely depends on adults for most of his vital functions – food, rest, protection, hygiene, play, and education. No wonder, then, that they are almost always comprised in the first handful of words uttered by a child – *papa* being more often than not the very first one (Locke 1983) –, because both the cognitive and biological pressure leads the child to them.

If appellatives are inherited from the Proto-Sapiens language, as we believe, how is it possible that they have been so miraculously preserved from phonetic erosion, which is known to regularly wipe off most of the resemblances between languages after a few millennia? According to us, the explanation is essentially earthly, and its moving forces are just those that have been discovered and explained by historical linguists in the course of their explorations through language change and preservation.

5. CHILDISH WORDS, NURSERY WORDS, AND LANGUAGE CHANGE

Two kinds of words seem to have been frequently mixed up in the linguists' minds when talking about "nursery words" from a historical perspective: childish words and *true* nursery words. Making a clear distinction between the two is necessary to understand how the imperfect linguistic tools of babies have strongly contributed to preserve kin terms through dozens of millennia – and perhaps through much longer time.

5.1. CHILDISH WORDS

Children learning to speak create a lot of words, in the sense of "words modified by a child because of his improper or incomplete phonetic and/or semantic system." Many words newly produced by a child before the age of 3 or 4 years answer this definition. Though there is a great deal of variability between children with regard to the distortions they may impose on the form and/or meaning of any particular word, these distortions nevertheless obey some general rules.

5.1.1. Childish phonology

A word like [manat], forged by the 19 months French language learner Magali[4] on [tɔmat] *(tomate)* 'tomato,' is typical of a childish, simplified phonology. This word is a tight calque of the adult form, though it was rendered almost unrecognizable by several simplifications. At the segmental level, the outcome might look like a complexification, since there are three different consonants in [manat], while there are only two in [tɔmat]. The key of the simplification resides at the feature level.

In [manat], the two different vowels were reduced to one – the basic vowel [a]. As for the three stop consonants, their two contrasting features ([nasal] *vs.* [oral], and [labial] *vs.* [dental]) were preserved, though they were redistributed over an easier articulatory sequence. In the adult form [tɔmat], each feature undergoes two changes: the oral and dental articulatory targets of initial [t] are converted to nasal and labial targets of [m], and the reverse changes occur for the final [t] (Diagram 1).

Diagram 1. Articulatory target changes in the consonants of [tɔmat] (arrow ⇒ indicates a change).

$$\overset{\text{t}}{\begin{bmatrix}\text{dental}\\ \text{oral}\end{bmatrix}} \begin{matrix}\Rightarrow\\ \Rightarrow\end{matrix} \overset{\text{m}}{\begin{bmatrix}\text{labial}\\ \text{nasal}\end{bmatrix}} \begin{matrix}\Rightarrow\\ \Rightarrow\end{matrix} \overset{\text{t}}{\begin{bmatrix}\text{dental}\\ \text{oral}\end{bmatrix}}$$

---

[4] First author's elder daughter.

In [manat], however, each of the two features undergoes a single change, with the [labial] feature of [m] changing to [dental] for [n] and [t], and the [nasal] feature of [m] and [n] changing to [oral] for [t] (Diagram 2).

Diagram 2. Target changes in the consonants of [manat].

$$\overset{\text{m}}{\begin{bmatrix}\text{labial}\\ \text{nasal}\end{bmatrix}} \Rightarrow \overset{\text{n}}{\begin{bmatrix}\text{dental}\\ \text{nasal}\end{bmatrix}} \Rightarrow \overset{\text{t}}{\begin{bmatrix}\text{dental}\\ \text{oral}\end{bmatrix}}$$

A major difficulty for the child consists in coordinating his articulatory movements in the quick sequence of a sound string. Thus, phonetic simplification may primarily consist for the child in reducing the number of target changes for each articulator. Segmental reduplication is but a special case of simplification in the succession of articulatory targets – as it is attested in the vowel change from [tɔmat] to [manat]. The highest degree of simplification is syllable partial or complete reduplication.

5.1.2. Childish semantics

On the semantic side, the most common deviations, observed since the XIX^th^ century, are underextension and overextension of concepts (Bassano 2000, Brigaudiot & Danon-Boileau 2002). Underextension is the reduction of the range of objects covered by a word. Underextension regularly links a category of objects to some salient contextual property. For instance, a child may use the word *shoe* only with reference to his mother's shoes, or *car* only for the cars he looks at through the window. Underextension is characteristic of the first stages of speech – when the child does not yet fully masters the abstract properties of the words and links them to already known individual objects or situations.

Conversely, overextension extends a word's range of designation beyond its adult use, on the basis of perceptual or functional features. A classical example is the use of *cat* or *dog* to name any kind of fourfooted animal. In turn, overextension tends to occur at somewhat later stages, when the child discovered the property of words to classify unknown objects or events, but still does not master all the individual classificatory properties (*i.e.* the semantic features) of each particular word.

5.1.3. The fate of childish words

Some of these childish words may be adopted for a while by the older members of the family, as a matter of fun or of proximity with the kid – so did Magali's parents with *manate* for several years, long after Magali herself did not say anything else but the normal form *tomate.* However, the process of language acquisition implies that these words get progressively corrected by the child – possibly through several different stages.

In this process, most of the earlier forms simply get forgotten. It is a commonplace for studies in language acquisition to speak of the "evolution" of the child's forms of speech, without explicitly addressing the question of the fate of earlier forms – which seems not to be a question at all. For all specialists, their destiny is to vanish into the new forms, more accurately reproducing those of adults. And they are right, because words like *manate*, however pleasant their use may be within the narrow family circle, have no chance to last longer than a couple of years (except that one out of some billions may survive, by an extraordinary hazard, under written form as an example in a linguistic journal), not to speak of being transmitted to the next generation, still less to spread to other speakers of the concerned language outside the family where they first appeared.

In a word, childish words last only the time for the child to learn the corresponding standard adult forms in his maternal language.

5.2. NURSERY WORDS

In linguistic parlance, the phrase *nursery words* refers to words exhibiting properties of the children language, that are nonetheless regularly used by adult speakers, mostly to speak to young children but also sometimes in other circumstances, *e.g.* for the sake of joke or as somewhat namby euphemisms for lexically tabooed things or actions, such as English *to pooh,* for which there does not exist a single plain English word, all other equivalent words being either highly coarse (*i.e.* taboo-breaking), as are *to shit* or *to crap,* or definitely elusive, as is *to pass a motion.*

At the phonetic level, nursery words greatly simplify the phonetic system of the corresponding adult language: they use predominantly cardinal vowels *a, i,* and *u,* plain occlusive consonants, and glides. Their syllables are free of consonant sequences, and frequently involve reduplication. In a nutshell, they mimick some of the most salient features of the children's first words.

With regard to semantics, nursery words are oriented towards the basic needs of the child. As appears from our data about kinship systems, kin terms obviously constitute a major subcategory of nursery words.

The crucial difference between childish words and nursery words is that the latter are learned from generation to generation. It is worth noting that nursery words are likely to go through childish forms in the mouth of a particular child before getting finally tuned up to the adult nursery form. This is exactly what was alluded to by Jakobson (1960) writing about *MAMA* words that *"children, being prompted and instigated by the extant nursery words, gradually turn the nasal interjection into a parental term and adapt its expressive make-up to their regular phonemic pattern"* – even though his phrasing, as we have seen above (section 2.1), intended to minimize the role of parental transmission.

5.2.1. Appellative kin terms

An important point must be made here. In a great number of languages throughout the world, the use of kin terms endowed with a nursery phonetic form, contrary to other nursery words, is not exclusively restricted to the family circle. In such languages, the usual pattern is that the concerned words are both the normal referential term and a respectful (or ironic) address term to one's parent(s) but also to other elder persons of the same sex; such is for instance the usage of *baba* in the world famous proper noun *Ali Baba* 'Father Ali,' who was – to the best of Sheherazade's imagination – nobody's father at the time he defeated the forty thieves.

In Tunen (Dugast 1967), a Bantu language of Cameroun, the appellative *ábà* [ápà] means 'father, dad, familiar and respectful term with which one addresses an old man, or in general one's father.' In Tunen, the appellative *ápà* is opposed to *ìsə̀* (plur. *p-ìsə̀*) 'the father, the father's brothers,' to *sə̀* 'my father,' and to *tɛ̀ ~ tìà* 'your father.' In another Camerounian Bantu language, Duala (Helmlinger 1972), *tè* (plur. *bà-tè*) 'the father,' is also used *"as a respect formula:* tè Dìbùndù *'honored Dibundu',"* or *"as a vocative* [to address one's own father]: à tè *'my father'."*

Both Tunen *ápà* and Duala *tè* are used as appellatives for either one's own father or other, respected male elders. The anthropological documentation is frequently silent about this extended use of kin terms; however, judging from well-documented languages from various families, this seems to be a quite general phenomenon (see Matthey de l'Etang & Bancel, this volume, section 4.1). It is worth noting that this use is a cognitive intermediate between mere appellatives, applying to already known individuals, and mere referential terms, from which any particular relation with the speaker has disappeared (see above, section 4.2).

Apparently, such words should not be called nursery words in the ordinary sense of the word, since they are largely used outside the family, and are in common use between adult speakers. Nevertheless, they are also used between children and their parents, and certainly are among the first words of babies. Their use to address non-kindred elders is a transparent(al) metaphor, placing the speaker in a childish position *vis-à-vis* his addressee. Moereover, in languages where kin nursery words are more narrowly restricted to one's own parents, they are almost the sole nursery words that are commonly used between kindred adults – for instance, an English adult may call his father *Dad* and his mother *Mom* all his life long.

In sum, kin nursery words are used by speakers of many languages not only in their childhood or to speak to their babies. On the contrary, most speakers of these languages use them continuously. Despite their childish form, and the varying childish connotation that may or may not be attached to them, kin nursery words are full members of the adult lexicon[5]. Their phonetic form corresponds to spontaneous prelinguistic utterances of babies, while their meaning is transmitted from generation to generation. And it must have been so for ages.

---

[5] Together with the Murdock-Jakobsonian vulgate, this ambiguous status of kin terms might be the reason why the literature on language acquisition apparently consistently shies away from them, as far as parental transmission is concerned. One of the best specialists is even embarrassed by kin nursery words to the point of joking, on page 1 of one of his books, about *"the child's first word – frequently the **infamous*** papa*"* (Locke 1983 [our boldface, PJB & AME]). Of course, Locke's factual statement about the frequency of *papa* as the first word of children corresponds to the intuition of anyone having been exposed to children learning to speak, an intuition already expressed by Jakobson (1960). Nevertheless, we could not find – either in Locke's book or elsewhere – any statistics on the rank and frequency of apparition of kin terms in the children's first words. Both are however

5.2.2. Carving (a test)

At the time of Murdock and Jakobson, the study of language acquisition was in its infancy, and few field observations had been conducted. It did not sound unreasonable to hypothesize that children could spontaneously carve parental terms from their early babblings, even though this was not documented by observational facts. Fourty-five years later, numerous studies have been carried out about children learning a variety of languages.

One may reasonably think that the *"carving"* by children of non-standard parental terms that would have been adopted by the adults and kept in use after the first stages of learning would have struck the descriptors enough to have been mentioned. This finding would constitute a countertest to our claim that parental kin terms are not spontaneously "carved" by babies – with or without the help of their parents. Now, it does not seem that a single case of this sort is to be found in the literature on language acquisition. And the non-existence of such cases is consistent with the extremely long documented life of particular kin terms in numerous language families with a written history and/or received reconstructions (see Matthey de l'Etang & Bancel, this volume, section 4).

Kin nursery words are definitely *not* childish words. In spite of their childish form, and albeit (or because) they appear in the first lexical items acquired by a child, they are members of the general lexicon of the languages they belong to. And because of their frequent use, and of the affective load they carry, they not only are members of the core adult vocabulary, but are the core of the core vocabulary[6].

5.3. LANGUAGE CHANGE AND KIN NURSERY WORDS

The 50,000 to 100,000 years long survival of kin nursery words since the split of Proto-Sapiens exceeds by some ten times the usually admitted limit of comparative linguistics, beyond which linguistic erosion is supposed to have rubbed out all resemblances between related languages. The question as to how words and morphemes may preserve comparable forms for a much longer time than 5,000 to 10,000 years was already discussed at length by Greenberg (1987, 1995), Bengtson & Ruhlen (1994), and elsewhere. However, the exceptional degree of preservation of kin nursery words demands a particular explanation. In turn, this explanation may be of interest with regard to other types of words, as well as to language change in general.

5.3.1. The two types of phonetic change

With regard to phonetic drift, two main types of change are known to be at work. The first one is the regular phonetic evolution, by which a given phoneme (quite often in a specific context) changes to another phoneme, or simply vanishes. It is called regular, because all the occurrences of the concerned phoneme in the concerned language are supposed to undergo the same change.

A regular sound change is a process limited in time, typically to a few decades. The change starts in some words, then spreads to other words where the same phonetic configuration (*i.e.* the phoneme plus its conditioning context), and then ceases – sometimes before having generalized to all occurrences. Phoneticians and phonologists offer explanations for most of the changes that have occurred. Taken together, these explanations give us a good picture of which changes are likely to occur and which are not. However, while various sound changes are documented in many written languages, we still ignore what triggers a sound change at a given moment, how it spreads among both the lexicon and the speakers of the concerned language, and why it finally ceases. For this reason, it remains impossible to predict whether and when a specific change will or will not occur in a given language.

---

certainly very high in all languages.

[6] It is still true in modern industrialized societies, where a good part of children's education finds place in the absence of their parents. In pre-industrial times (200 years ago), and still more in pre-agricultural times (8,000 years ago), almost all individuals lived their entire life with close relatives, while a much greater part of the social structure was determined by kinship relations. Under such conditions, the use of kin terms may only have been much more frequent and the relations they refer to psychologically more pregnant than they are today.

The other type of phonetic change is analogy. The sources and effects of analogy are much more diverse than those of regular phonetic change. Through analogical change, a feature, a segment, a morpheme, a word, or a morphological paradigm is modified or replaced under the influence of other linguistic forms. The general explanation of analogy relies on both the (phonetic and/or semantic) resemblance and the relative frequencies of the items involved: a highly frequent form will tend to spread analogically to similar forms that are less frequent. The importance of frequency is such that among a set of forms undergoing analogical change, it often happens that the most frequent ones resist the analogical change and subsist as irregularities.

Such was for instance the case in the analogical replacement of Latin 2nd person plural endings in the present indicative French conjugation. All three Old French endings *-ez* (< Latin *-atis*), *-eiz* (< Lat. *-ētis ~ -ītis*, an earlier Gallo-Romance analogical confusion), and *-tes* (< Lat. *-ĭtis ~ -(s)-tis*) were the respective results of regular sound laws. The more frequent ending *-ez* replaced the two other endings *-eiz* and *-tes* in all verbs except three highly frequent ones. Finally, all Modern French verbs but *être* 'to be' (2nd plur. pres. ind. *ê-tes*), *faire* 'to do' (2nd p.p.i. *fai-tes*), and *dire* 'to say' (2nd p.p.i. *di-tes*) have the same ending *-ez* in the 2nd person plural. As a result, in Modern French, only a fraction of the *-ez* verb forms are phonetically regular with regard to their original Latin forms, while the three (phonetically regular) forms *êtes*, *dites*, and *faites* have now become morphological irregularities.

Analogy is the source of innumerable changes in the phonetic form of words and morphemes, to the point that, for instance, among the French forms that are inherited from Latin through direct oral transmission, certainly less than 20% may be explained by regular sound laws only.

5.3.2. Kin nursery words, babies, and analogy

Kin nursery terms are among the most frequent words in everyday use. It is especially true for two crucial parts of the life of most present-day speakers – their infancy, which is the period where they receive the definitive imprint of their maternal language, and, once they are adults, the period where they in turn breed their own children. And it was still more true in pre-industrial societies, which constituted the evolutionary context of most languages until a few centuries ago (see note 5). Furthermore, at any historical time, kin nursery terms have been the words with which people learn to speak. These features make these words typically subject to analogy.

Now, suppose that a language is undergoing a regular phonetic change that will modify all its intervocalic *b*'s to *v*'s (which is a quite common change). In this language, the phonetic form of *aba* 'father' should thus soon become *ava*. The adult speakers, however, have heard and told the form *aba* thousands of times when they were children, often in quite memorable circumstances: when being rewarded, taught, or fed, as well as when being scolded, threatened, or smacked. It was *aba*, not *ava*, because twenty years earlier the phonetic change was not underway yet. Moreover, many or most adult speakers never stopped to use this word, often at a daily rate, so that its phonetic (auditory and articulatory) imprint always kept alive in their memory.

In and by itself, the frequency of the *aba* form make us expect that in at least a number of cases the ancient form will resist the change – just like *êtes, dites,* and *faites* did not become *êtez, disez,* and *faisez*. And there are two differences between the 2nd person verb endings and a word like *aba*, both of which would make us expect that the latter would resist change much more firmly than the formers. First, in French, the analogical pressure of the *-ez* verbs on these three forms is still at work today after some fifteen centuries, and their frequency nevertheless allowed them to survive. A regular phonetic change does not last for more than a century: it may only be much easier to survive such a short period of instability. And second, none of the three *-ez* French verbs has taken you in its arms, laughed with you, hit you when angry: they are just good old tools for everyday use – which is something already. Although we do not know of studies about the effect, on their historical preservation, of the affective load that words may carry, we think that the high affective potential of kin terms may only have reinforced their stability.

And there is another crucial factor: babies. During the period of the *b* > *v* process, where *aba* is supposed to become *ava*, there must be babies, too. Just like babies of other historical periods, they learn to speak. Even if some parents have begun to adopt the new *ava* form, all babies will nevertheless begin to speak with their childish *aba*, or *baba*. This may hardly fail to remind the parents the ancient *aba* form and perpetuate it – remember that only a fraction of the adults have begun to shift to *ava*.

Thus, three factors conspire to protect kin nursery terms from regular sound changes: their high frequency, their affective load, and the phonetic abilities of babies. Together, these factors were powerful enough to secure the survival of these words through dozen and dozen of millennia in over half of the world's languages.

5.3.3. The fate of kin nursery words

Kin nursery terms are highly constrained from both sides – parents and children. Parents teach the meaning and the phonetic form, children keep this form within the range of their early phonetic abilities. If it was not so, one would not find the huge global series of kin nursery words with closely related meanings.

These constraints explain why such forms as Proto-Semitic **ʔab-* 'father,' which is attested by forms as old as Eblaic *abbuʔ* 'elder,' Akkadian *abu ~ abi* 'father, grandfather,' Ugaritic *ʔab* 'father,' Old Babylonian *abu* 'father,' Phoenician *ʔb* 'father,' Hebrew *ʔāb* 'father,' Judaic Aramaic *ʔabbā* 'father,' Syrian Aramaic *ʔabbā* 'father,' Mandaic Aramaic *ab ~ aba* 'father,' Northern Aramaic *abhī* 'father,' Neo-Syriac (Nestorian) *babee* 'father,' and Epigraphic South Arabian *ʔb* 'father,' underwent almost no phonetic change until the present day, as is attested by modern forms such as Arabic *ʔab-* 'father,' Ge'ez *ʔab* 'father,' Tigre *ʔab* 'father,' Tigrinya *ʔabbo* 'father,' Amharic *abbat* 'father,' Harari *āw* 'father,' East Ethiopic *ābu ~ abot ~ abbä ~ ab̲ot* 'father,' Gurage *ab ~ ab̲ ~ ab̲i ~ aw* 'father,' Mehri *χáyb* 'father,' Harsusi *χayb* 'father,' or Soqotri *ʔab* 'father.'

An *a contrario* confirmation of these constraints is the fact that, once a kin term escapes the appellative box where it has rolled for ages, and falls into the merely referential vocabulary, it becomes subject to regular phonetic evolution. Such was the fate of the Indo-European referential roots **pa-tḗr* 'father' and **ma-tḗr* 'mother,' obviously derived from *papa* and *mama* forms (with a suffix *-tḗr* that appears in several other Indo-European kin terms). Many languages from different Indo-European branches have preserved these two words – because even as referential terms, they belong to the core vocabulary, which grants them with a high resistance to word replacement. Nevertheless, all reflex forms have undergone the regular sound changes particular to each language which have preserved them. For instance, Proto-Indo-European **pa-tḗr* 'father' evolved into Tocharian A *paacar*, Tocharian B *paacer*, Sanskrit *pitar*, Avestan *pitar*, Iranian *pedar*, Ossetic *fyd*, Greek *patēr*, Armenian *ḫayr*, Proto-Germanic *fader*, English *father*, Old Irish *athir*, Latin *pater*, Spanish *padre*, French *père*, etc.[7]

5.3.4. Reconciling Murdock with Jakobson

The idea of a double parental and childish constraint bearing on kin nursery terms also allows to reconcile the seemingly contradictory claims of Murdock and Jakobson that we discussed in section 2.1.

Let us quote them again. Murdock: *"As standard parental terms become phonetically and morphologically modified in consequence of the normal process of linguistic change, forms develop that are difficult for very young children to pronounce. Under such circumstances, simpler nursery forms tend to appear – carved, so to speak, out of infant babblings under parental encouragement."* As we mentioned above, it is highly unlikely, and seemingly unattested, that a child could spontaneously create from his babblings a word, differing completely from the standard adult term. Moreover, if his babblings did not make his parents remind a word already known to them, there would be no reason for them to encourage the child. Murdock's *"parental encouragement"* may only be triggered by babblings identical or nearly identical with an adult word. Now, if the child's babblings unequivocally made the parents remind an earlier form, that a sound change had recently made *"difficult for young children to pronounce," "parental encouragement"* would then become not only probable but almost certain. Under this necessary condition, this *"parental encouragement"* is the exact equivalent of the "prompting and instigation by the extant nursery words" advocated by Jakobson.

Let us now turn to Jakobson: "[...] *children, being prompted and instigated by the extant nursery words, gradually turn the nasal interjection into a parental term and adapt its expressive make-up to their regular phonemic pattern."* This would certainly not happen, if the *"extant nursery words"* were completely different from the child's babblings. However, if they are close enough to standard adult terms, and granted that "prompting and instigation by the extant nursery words" amounts to direct oral transmission by the adults, the only innovation the baby may bring in is to annihilate the effect, on these

---

7. Note that the initial *p* is the less stable of the three consonants of the original root, since it may either spirantize to *f* (as in Germanic or Ossetic), weaken to *h* (as in Armenian), or vanish (as in Celtic). This may be regarded as going against the idea that there could be any special symbolic relation between labial stops and paternity.

particular words, of an ongoing sound change. Under this necessary condition, turning *"the nasal interjection into a parental term and* [adapting] *its expressive make-up to their regular phonemic pattern"* may result, as predicted by Murdock, in the replacement of *"forms* [having become] *difficult for very young children to pronounce* [by] *simpler nursery forms."* And these simpler forms must be the ones that antedated the change.

Murdock's and Jakobson's works are now routinely interpreted as showing that babies would continuously innovate in creating new kin terms that replace older ones. Taken at face value, this theory is contradictory with both observations of language acquisition and the theoretical impossibility for a child to discover alone the symbolic function of language. However, Jakobson himself acknowledged the crucial role of *"extant nursery words", i.e.* of parental transmission. And Murdock is not wrong, either, in claiming that children replace forms having become difficult to pronounce by *"simpler nursery forms."*

Both of them were right, at last. But the correct synthesis of their work is not that children continuously innovate in creating new kin terms that replace older ones. Rather, children continuously recreate older terms that replace newer ones. To understand it, one just needed to admit that the similar kin nursery terms found in so many languages of the world must share a common origin. All is well that ends well.

6. FROM PROTO-SAPIENS TO PROTO-HUMAN

Simplicity and efficiency are apparently decisive for the first words of contemporary children. These properties also must have been crucial for the archaic humans who opened the way to articulate language. Most notably, their speech organs were not devised to facilitate a complex and varied elocution, as ours fortunately have become to be through biological evolution. Before entering the question of how archaic humans may have coped with such poor phonetic equipment as they had before the evolutionary process transformed it into the wonderful vocal tract we enjoy today, a preliminary theoretical linguistic remark is necessary.

6.1. THE DOUBLE ARTICULATION OF LANGUAGE

Just like the Murdock-Jakobsonian explanation of *PAPA* and *MAMA* words, it is a linguistic commonplace to say that language is doubly articulated. According to the discoverer of this double articulation, the French linguist André Martinet (1970), language consists of words (or morphemes, or *"monèmes"* ["monemes"] in Martinet's terminology) articulated into sentences. Words themselves are made of articulated phonemes. Starting from the observational data – *i.e.* sentences –, and from a somewhat crude conception of the encoding process in the speaker's mind, Martinet (1970: 13-15) calls the articulation of words into sentences the "first articulation," and the articulation of phonemes into words (or monemes) the "second articulation of language."

For any historical subject matter we may think of where the order of the two articulations is of importance, Martinet's order may only be seriously misleading. The main reason is that this order, albeit it was conceived from and for the synchronic analysis of adult speech, receives a diachronic interpretation that runs counter to all available evidence.

As to child language acquisition, it is obviously wrong that the articulation of words into sentences occurs before the articulation of phonemes into words. In order to put words together into any kind of sentence, one must first have the words at hand. Not two or three words, but a lot of words of different kinds – nouns and verbs, at least. And the only way to have a lot of words at one's disposal is to have a set of distinctive phonemes from which to build up these words.

This is exactly the way followed by every modern child. From 6 months on, he first trains babbling for several months, until he masters at least a subset of his language's phonemes; then, from 12 months on, he begins to build up words; and once he has got a set of words, from 18 months on, he begins to gather words into sentences (Brigaudiot & Danon-Boileau 2002). Of course, there is a lot of individual variability in both the starting date and the duration of each stage, as well as considerable overlap of all three stages: the child's phonetic development is not completed before the age of 3 or 4, while lexical acquisition may last forever. The crucial point is that the relative starting points of the three stages must be in the order we just defined. One cannot make sentences without words; and one cannot make words without phonemes. At least with regard to child language acquisition, the first articulation of language is unquestionably the phonetic one.

With regard to the original beginning of articulated, symbolic language, could anyone imagine that it began otherwise? Could the syntactic articulation have preceded the phonetic one? Obviously not. Just like modern children, archaic humans must have begun building words, and a sufficient number of words, before they started to assemble words into sentences. And to build this sufficient number of words, they first needed to develop the first articulation – here also, the phonetic one.

Before closing this section and turning to the first words of humankind, it is fair to mention that Martinet himself, in his Chapter 2 entitled *"Description des langues,"* reasonably states that he *"will begin with the second* [*i.e.* phonetic] *articulation,"* explaining this strange inversion by contingent, practical reasons (Martinet 1970: 37-38). When practice conflicts with theory, theory rarely wins.

6.2. THE FIRST WORDS OF HUMANKIND

Our early ancestors' mouths had been primarily devised by evolution to eat, drink, and breathe, and to bite, taste, and shout. It is only after their first steps in the art of talking that biological evolution may have – and indeed has – selected a new configuration which has the great advantage to permit us to utter a wide range of sounds, either vowels or consonants. Before that, articulatory simplicity was the only available choice.

The evolutionary pressure which resulted in the (energetically costly) brain size growth in humans along the last 4 million years may have had various supporting causes, such as improved efficiency in the conception and fabrication of tools, hunting techniques, etc. Among these causes, developping the language neurological facilities is but one. However, with regard to several modifications of the vocal tract, the selective pressure must have rested essentially on language-linked reasons. This is particularly true of the descent of the larynx, because of the severe drawbacks it otherwise entails with regard to the basic eating and drinking functions of the mouth. Our modern vocal tract has the drawback of allowing swallowing food or water through the larynx and trachea instead of the oesophagus – this problem does not happen to our remote cousins gorillas or chimps, nor probably might have to our closer cousins Neandertals (Lieberman *& al.* 1975, Lieberman 1992).

Now, biological evolution takes a long time – because of the very low DNA mutation rate; because of the great number of genes, that renders unlikely that any given mutation has anything to do with the larynx position; and, then, because of the low probability that any larynx-linked mutation has a favorable effect on the phenotype of its bearer. The time for a significant genetic change to occur and spread through a population must at least be counted in hundreds or thousands of millennia. This implies that the first apparition of phonetically articulated language must have antedated the full development of the language physiological equipment by such a time span.

The constraints bearing today on language acquisition also bore – and still more heavily – on children from the remote past. And for a long time, these constraints must have borne on adult speakers as well. *(P)APA*, *(T)ATA*, *(M)AMA*, *(N)ANA*, and *(K)AKA* words, which are the simplest words to utter for modern children, also must have been so not only for archaic children but for archaic adults, too. This evolutionary self-evidence is confirmed by computer modelizations of archaic human vocal tracts (Lieberman 1992).

If *(P)APA* and *(M)AMA* words are the easiest words to pronounce, and the simplest and most efficient ones from the cognitive viewpoint, how could it be that they have not been the first words of human beings, when their phonetic and cognitive abilities and background were much more limited than ours? Could articulate language have begun otherwise than with its simplest and most efficient forms?

However, modern babies are very different from archaic humans. There are many things we ignore about the latters, that could bear on this proposed parallel between language phylogeny and ontogeny. Could one test in the real world what could say, for a start in spoken language, beings quite close to modern humans but whose phonatory organs were not devised for speech?

6.3. TESTING THE HYPOTHESIS

What kind of syllables would such beings utter as their first articulated sound sequences? Given that the only remaining human species on Earth is ours, *Homo sapiens,* to conceive an experiment allowing to discover it might seem a daydream. It is not, however.

Anthropoid apes are known today to be highly gifted for communication. Provided dedicated humans only bother to teach them, they can learn and use hundreds of signs – not spoken words –, which they may even combine into short "sentences." So do the chimpanzee Washoe (Gardner, Gardner & Van Cantfort 1989), the gorilla Koko (Patterson 1987), the bonobo Kanzi (Savage-Rumbaugh 1994), and others. They even may invent new signs. And signing chimp mothers even teach their children this exogenous mean of communication (Fouts, Fouts & Van Cantfort 1989).

These impressive talents were revealed only from the 1960's on, when several scholars had the idea to use other media than speech – either Ameslan (the American sign language, primarily devised to communicate with or between deaf people; Gardner, Gardner & Van Cantfort 1989), plastic icons, or tabulated images on a board (Savage-Rumbaugh 1994). The performances of apes tell us a lot about their cognitive and semantic abilities – which are, as it appears, quite sufficient for a start in semantically articulated language. However interesting this point may be for our hypothesis from another angle, it is not our precise concern here. Let us remind that our goal is to know what kind of *sound sequences* are likely to have been the first ones of an archaic human mouth, before evolution had given it its specifically talkative shape.

Before these nice developments in human tries to communicate with apes, several scholars, in the first half of the XX^th^ century, had undertaken to teach spoken English to chimps. Out of these chimps, Peter (Witmer 1909) is reported to have articulated only two words, Gua (Kellogg 1933) to have never spoken at all, while the hardly more skilled Vicki (Hayes 1951) reached the number of four words. The general conclusion was precisely that their phonatory organs were not adequately devised for speech. And this conclusion led subsequent scholars to the ingenious and successful use of non-phonetic equivalents as vehicles for meaning.

Indeed, Witmer and the Hayes had discovered what hominid phonatory organs not devised for speech may utter. But these pioneers were not as much interested in testing the phonatory abilities of their pupils as their intelligence, which they rightly felt was much greater than could appear from their severely limited conversation. And no one since wondered what the poor words of Peter and Vicki had to tell us about mouths not devised to speak, as those of our hominin ancestors who invented language obviously must have inherited from their common ancestor with present-day apes.

The two words of Peter were *mama* and *water* (*i.e.* [wata]); and the four of Vicki, *mama, papa, up* ([ap]), and *cup* ([kap]). These words answer the question we asked in the beginning of this section. Both Peter and Vicki said *mama;* Vicki added to it *papa,* and the three other words are also made of the most open vowel combined with plain stops (except the initial glide [w] in *water*).

These sounds correspond to the possibilities hypothesized by Lieberman (1992) for an apean vocal tract on the basis of computer models. They also correspond to the highest levels of phonetic efficiency and simplicity, as we have seen above (section 3). And they are a quite decisive test of the phonetic validity of our hypothesis: *papa* and *mama* are the best sound strings to start with language today, as they have always been since the beginning of humankind. To us, the Peter & Vicki test confirms that *(P)APA* and *(M)AMA* also have been the first articulated words of the Proto-Human language, a long time before Proto-Sapiens.

7. CONCLUSION

Kin nursery words *(M)AMA, (P)APA, (T)ATA, (N)ANA, (K)AKA,* and *(J)AJA* are demonstrably 50,000 to 100,000 years old. They correspond to the first syllable sequences emitted by children when they learn to speak, and also are the first words of a great many of them. They display numerous intrinsically primitive features. Finally, they also are among the very few words our nearest cousins may utter – admittedly after a hard training: they are hominids, not hominins, after all. The question is then: with such a number of strong converging arguments in favour of their primitive nature, how could these words not have been the first words uttered by human beings? It seems that no other words might emerge as better candidates for the birth of articulated language, that must have begun with a strange and unique invention: the discovery of consonants.

All phonetic, semantic, evolutionary, and behavioural arguments converge to point kin "nursery" terms as the primeval ancestors of human spoken words. Both their vital importance and the conditions of language acquisition, many of which remain today the same as in the most remote origins, have secured their survival until the present day in a great number of the world's languages. They are living linguistic fossils, and they have a lot more to teach us than what was exposed here.

Now, not all the problems are settled. We have no test at hand for the semantic side of *(P)APA*, *(T)ATA*, *(M)AMA*, *(N)ANA*, and *(K)AKA* as the first human words – have they been some kind of kin terms from scratch, or does their reconstructed meanings at the Proto-Sapiens stage result from a long semantic evolution? The huge gap between Proto-Sapiens and Proto-Human represents in any event several hundreds or thousands of millennia. And it may not be filled in by comparative linguistic means. Really not? Not completely. And filling this gap might well help us to discover what these words have been in the beginning. But that is another story.

REFERENCES

Bancel P. J. & A. Matthey de l'Etang. 2002. "Tracing the Ancestral Kinship System: The Global Etymon *KAKA*. Part I: A Linguistic Study," *Mother Tongue* VII, 209-243.

Bassano D. 2000. "La Constitution du lexique : le 'développement lexical précoce'," *in* Kail & Fayol (2000).

Bengtson J. D. & Merritt Ruhlen. 1994. "Global Etymologies," *in* Ruhlen (1994*b*).

Bertoncini J. & B. de Boysson-Bardies. 2000. "La Perception et la Production de la parole avant deux ans," *in* Kail & Fayol 2000.

Boysson-Bardies B. de & M. M. Vihman. 1991. "Adaptation to Language: Evidence from Babbling and First Words in Four Languages," *Language,* LXVII, 297-319.

Boysson-Bardies B. de *et al.* 1992. "Material Evidence of Infant Selection from the Target Language: a Cross-Linguistic Phonetic Study," *in* C. A. Ferguson, L. Menn & C. Stoel-Gammon (eds). *Phonological Development: Models, Research, Implications.* Timonium: York Press.

Brigaudiot M. & L. Danon-Boileau. 2002. *La Naissance du langage dans les deux premières années.* Paris : PUF.

Buhr R. 1980. "The Emergence of Vowels in an Infant," *Journal of Speech and Hearing Research,* XXIII, 73-94.

De Laguna G. 1927. *Speech: Its Function and Development.* New York: Yale University Press.

Dugast I. 1967. *Lexique de la langue tunen, parler des Banen du sud-ouest du Cameroun.* Paris: Klincksieck.

Fouts R. S., D. H. Fouts & T. E. Van Cantfort. 1989. "The Infant Loulis Learns Signs From Cross-Fostered Chimpanzees," *in* Gardner, Gardner, & Van Cantfort (1989).

Gardner R. A., B. T. Gardner & T. E. Van Cantfort (eds.). 1989. *Teaching Sign Language to Chimpanzee.* Albany: SUNY Press.

Greenberg J. H. 1963. *The Languages of Africa.* Bloomington: Indiana University Press.

Greenberg J. H. 1971. "The Indo-Pacific Hypothesis," *in* T. Sebeok (ed.), *Current Trends in Linguistics* VIII. The Hague: Mouton.

Greenberg J. H. 1976. Public lecture given at Stanford University, quoted in Ruhlen (1991: 261).

Greenberg J. H. 1987. *Language in the Americas.* Stanford: Stanford University Press.

Greenberg J. H. 1995. "The Concept of Proof in Genetic Linguistics," *Mother Tongue* I, 207-216.

Greenberg J. H. 2000-2001. *Indo-European and Its Closest Relatives: The Eurasiatic Family,* vol. I: *Grammar;* vol. II: *Lexicon.* Stanford: Stanford University Press.

Grégoire A. 1937. *L'Apprentissage du langage. Les deux premières années.* Paris : Félix Alcan.

Hayes C. 1951. *The Ape in Our House.* New York: Harper.

Helmlinger P. 1972. *Dictionnaire douala-français, suivi d'un lexique français-douala.* Paris: Klincksieck.

Jakobson R. 1960. "Why *Mama* and *Papa*?," *in* B. Kaplan & S. Wapner (eds.), *Perspectives in Psychological Theory, Essays in Honor of Heinz Werner.* New York. Repr. *in* R. Jakobson. 1971. *Studies on Child Language and Aphasia.* The Hague - Paris: Mouton.

Kail M. & M. Fayol (eds). 2000. *L'Acquisition du langage. Le Langage en émergence : de la naissance à trois ans.* Paris: PUF.

Kellogg W. N. & L. A. Kellogg. 1933. *The Ape and the Child: A Study of the Environmental Influence on Early Behavior.* New York: McGraw Hill.

Ladefoged P. & I. Maddieson. 1996. *The Sounds of the World's Languages.* Oxford: Blackwell.

Liberman A. M., F. S. Cooper, D. P. Shankweiler & M. Studdert-Kennedy. 1967. "Perception of the Speech Code," *Psychological Review,* LXXIV, 431-461.

Lieberman P. 1980. "On the Development of Vowel Production in Young Children," *in* G. H. Yeni-Komshian, J. F. Kavanagh & C. A. Ferguson (eds). *Child Phonology,* vol. I: *Production.* New York: Academic Press.

Lieberman P. 1992. "On the Evolution of Human Language," *in* J. A. Hawkins & M. Gell-Mann (eds.). *The Evolution of Human Languages.* Proceedings of the workshop on the Evolution of the Human Languages held August, 1989, in Santa Fe, NM. Redwood City: Addison-Wesley.

Lieberman P., E. S. Crelin & D. Klatt. 1972. "Phonetic Ability and Related Anatomy of the Newborn and Adult Human, Neanderthal Man and Chimpanzee," *American Anthropologist* LXXXIV, 287-307.

Locke J. L. 1983. *Phonological Acquisition and Change.* New York: Academic Press.

Maddieson I. 1984. *Patterns of Sounds.* Cambridge (Mass.): Cambridge University Press:

MADDIESON I. 1997. "Phonetic Universals," *in* W. J. HARDCASTLE & J. LAVER (eds.), *The Handbook of Phonetic Sciences,* Cambridge (Mass.): Blackwell.

MACNEILAGE P. F. & B. L. DAVIS. 1990. "Acquisition of Speech Production: Frame, then Content," *in* M. JEANNEROD (ed.), *Attention and Performance,* XIII: *Motor Representation and Control.* Hillsdale (NJ): Lawrence Erlbaum Ass.

MARTINET A. 1970 [2003]. *Éléments de linguistique générale.*Paris: Armand Colin:

MATTHEY DE L'ETANG A. & P. J. BANCEL. 2002. "Tracing the Ancestral Kinship System: The Global Etymon *KAKA*. Part II: An Anthropological Study," *Mother Tongue* VII, 245-258.

MATTHEY DE L'ETANG A. & P. J. BANCEL. 2004. "The Global Distribution of *(P)APA* and *(T)ATA* and their Original Meaning," this volume.

MILLER G. A. 1956. "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information," *Psychological Review,* LXIII, 81-97.

MURDOCK G. P. 1959. "Cross-Language Parallels in Parental Kin Terms," *Anthropological Linguistics* I (9), 1-5.

OLLER D. K. 1980. "The Emergence of the Sounds of Speech in Infancy," *in* G. H. YENI-KOMSHIAN, J. F. KAVANAGH & C. A. FERGUSON (eds). *Child Phonology,* vol. I: *Production.* New York: Academic Press.

PATTERSON F. 1987. *Koko's Story.* New York: Scholastic Books.

POKORNÝ J. 1959. *Indogermanisches etymologisches Wörterbuch.* Bern.

RUHLEN M. 1991. *A Guide to the World's Languages,* vol. I: *Classification.* Stanford: Stanford University Press.

RUHLEN M. 1994*a*. *The Origin of Language. Tracing the Evolution of the Mother Tongue.* New York: John Wiley.

RUHLEN M. 1994*b*. *On the Origin of Languages. Studies in Linguistic Taxonomy.* Stanford: Stanford University Press.

SAUSSURE F. DE. 1879. *Mémoire sur le système primitif des voyelles dans les langues indo-européennes.* Leipzig : Teubner.

SAVAGE-RUMBAUGH S. & R. LEWIN. 1994. *Kanzi the Ape at the Brink of the Human Mind.* New York: John Wiley.

STERN C. & W. STERN. 1907. *Die Kindersprache: eine psychologische und sprachtheoretische Untersuchung.* Leipzig: Barth.

WITMER L. 1909. "A Monkey With a Mind," *Psychological Clinic* XV, 179-205.

Some thoughts about Shabo, Ongota and the Kadu family of languages.

Philippe Bürgisser,
Lausanne, Switzerland

INTRODUCTION

In 1963 J. Greenberg proposed a new classification in which the languages spoken in Africa were distributed into 4 families, namely Afro-Asiatic (or Afrasian), Niger-Kordofanian (or Niger-Congo *sensu lato*), Nilo-Saharan and Khoisan. This classification is now widely accepted. There are still unsolved questions, however. Some languages such as Shabo and Ongota were unknown in the sixties, while others such as those constituting the Kadu family were only poorly documented.

In the last issue of Mother Tongue, H. Fleming presented a highly valuable paper on Shabo. This puzzling language is spoken in southwestern Ethiopia and its taxonomic position is in dispute. Fleming's paper includes the whole of our knowledge of the lexicon (including personal pronouns and numerals) of this language as well as a discussion about its affiliation.

Kadu (Kado, Kadugli-Krongo, Tumtum) is a small family of nine rather closely related languages spoken in Sudan with a controversial taxonomic position as well. Kadu languages were included by Greenberg in the Kordofanian family. Later on however, T. Schadeberg, one of the greatest specialist of the Kordofanian languages, excluded Kadu from Kordofanian (hence from Niger-Kordofanian), a position followed by most linguists. Several scholars including Schadeberg himself or R. Stevenson proposed to include the Kadu family in Nilo-Saharan (NS). L. M. Bender went even further by placing Kadu at the core of NS, together with Koman and East Sudanic. In contrast, C. Ehret disagrees with this proposal, seeing Kadu as very remotely related to NS if at all.

I thought interesting to look whether Ehret's reconstruction of proto-NS, a work that has recently been published, could shed some more light into those matters. I consider Ehret's work as being a very major step towards the consolidation of the NS phylum, even though some reservations should be made.

Finally, I have added a very short comment on Ongota pronouns, according to data published by Fleming on this divergent Afrasian language in the same issue of Mother Tongue.

SHABO

I would like first to propose some additional potential cognates between Shabo and NS not mentioned in Fleming's paper, as well as to comment some of those presented there, using Ehret's reconstructions and also some etymologies published by Bender.

- Shabo (Sh) **fiffi** « blow, inflate », Ehret's n° 654 *p^{h}u « blow with the mouth » and 656 *p^{h}uh "lungs"
- Sh **du ~ duh** « breast$_2$ », Ehret's n° 227 *eyd « breast »
- Sh **sengi / seyηse ~ sheeci** "claw, fingernail", Bender n° 354 including Gumuz **cogwa** etc., Kunama **shok-oina**, Tubu **shoη-kol**, East Sudanic **shokna**, **shuk-om**, Kuliak **sag**, **sak** "claw" (more details under Kado "nail"); and Kadu **shoηgo-ro** (Kufo, Sangali), **soηgo-ro** (Miri).
- Sh **wo** etc. « drink », Kadu **(V)w(w)V** (e.g. Talla **awwe**)

- Sh **koggod** « elbow » if k = « movable k », Kadu **–goor-o, -koor-o** (Bender)
- Sh **c'eek'a ~ c'eeka ~ shek** « hair », Ehret's n° 1234 ***zuk**^{h} « fur, hair »
- Sh **iifu ~ if ~ epu** « hand », I would rather propose Ehret's n° 569 ***peh**, with reflexes in Uduk (**pe-** « base 5 in numerals 6-9), Tubu (**kobe** – with movable ***k**^{h} - « hand ») and Songhai (**kabe**, cf. Tubu)
- Sh **hob'u** « hot », Ehret's n° 1565 ***ha'w** or ***ha':w** "to be hot", with reflexes in Kunama, Kanuri and Kadaru Nubian in addition to Kuliak
- Sh **caam ~ c'am** « leaf », Ehret's n° 937 ***t**^{y}**'e: / t**^{y}**'e:m** « ear, leaf », also present in Saharan (Kanuri, Teda, Daza), Nara and perhaps S. Nilotic Datoga.
- Sh **nena ~ n**^{y}**et** « louse », Ehret's n° 387 **n**^{y}**o ~ n**^{y}**oh** « bite » (details under Kadu "eat 2")
- for Sh **k'add** « tongue », we have a large choice : (1) Ehret's n° 1008 ***k**^{h}**al** « to lick, lap ; tongue » (however a correspondence between pNS aspirated ***k**^{h} and Sh ejective **k'** does not convince me); (2) Ehret's n° 534 **ηel** « tongue » which includes pNubian ***ηal-t.** > ***jald.** (Hill nubian), **natti** (Birgid), **nar** (Nobiin), **kada** (Midob) (details under Kadu "neck 2") ; if right, then Surma-Nilotic ***ηud'** « neck » should correspond to Sh. **koodo** rather than **noodo**, if not a borrowing, unless the fate of initial NS *η in Sh. differs according to the following vowel ; (3) Ehret's n° 1098 **k'ol** « to chew, eat ; mouth » (details under Kadu "food"); etc...
- for Sh **umb'a ~ unb'a ~ umba** "woman", there is Ehret's n° 92 **mbwa** « to bear (fruit, child) » with Kanuri **yambo / tambo**, or n° 30 ***b'wah** « female » that includes Uduk **ab'om**

Second, I am quite puzzled by Shabo's personal pronouns. There is nothing here that recalls me the canonical NS forms described by Greenberg, Bender and Ehret, nor any evident cognation with Afrasian (AA) pronouns (at least in the Erythraeic branch).

Another observation is that there are certainly arguments in favor of a special relationship between Shabo and Koman (including Gumuz). However, there seems to be an important difference. Whereas, according to Ehret, « movable k (Ehret's ***k**^{h}) » is absent in Koman nouns, it appears to be attested in Shabo (cf. **kep** « shoulder, arm » or **kosa ~ kosh** « bad »). [Concerning the 1st example, I would allow myself to suggest that the true Uduk representative is **abi** (cf. Ehret n° 75 ***abi**), while **k'uphbi** or **kwop** (Madin) could be a compound word made of ***abi** preceded by a root such as n° 1101 ***k'o:d'** « base of the neck » (cf. Maba **korkoru-k** « shoulder ») with assimilation of **d'** before **b**, or more likely by n° 1110 ***k'ut**^{y} ~ ***k'ut**^{yh} "to fold, bend, especially arm or leg", or still by another one of this sort. Indeed, movable ***k**^{h} seems involved, but it should not show up in Koman and furthermore not as a glottalized **k'**].

So, after discarding likely borrowings from Majang, Oromo or Amhara, there remains a sizeable number of **basic** lexical elements with possible cognates in Omotic (mainly Nomotic), a few ones with possible cognates in Cushitic, and another few ones with possible cognates in Afrasian (AA) as a whole (Fleming 1991, 2002). In contrast, there is a much more impressive number of potential **basic** cognates in Nilo-Saharan (NS) as a whole, including some lacking reflexes in Koman, in addition to the basic lexemes shared with Koman alone. Thus, from this point of view, I would consider Shabo as a hybrid or "mixed" language in which the NS contribution clearly outweighs that of AA. This is somewhat reminiscent of the situation of Ainu, with seemingly one foot in the Austric phylum and the other in the Eurasiatic phylum.

ONGOTA

I get really puzzled when considering personal pronouns of this divergent Afrasian language. Looking at the sg forms, there seems at first that the 1st, 3d masc. and 3d fem. persons are differentiated by a vocalic pattern (**ka**, **ki**, **ko** ~ **ku**, respectively), while the 2nd person (**jaa**) stands apparently apart. This does not look like anything I know of in Afrasian, at least in its Erythraeic branch. On the other hand, if 1st person **ka** can be opposed to the other attested form of the 2nd person $^{?}$**i**, it would look very Nilo-Saharan (e.g. Ehret's 1st pers. ***k^{h}ah** > ***k^h** « movable k » + ***ah** « 1st pers. » ; 2nd pers. ***i**). Is it the main argument why V. Blazhek considers Ongota pronouns as NS ?

THE KADU FAMILY

Schadeberg is certainly right when he affirms that Kadu does not belong in Kordofanian (nor in Niger-Congo *sensu stricto*), but to relate Kadu to NS is another affair. The Tables below represent an attempt to establish such a relationship at the lexical level.

I must first mention that I found Kadu very difficult to deal with for several reasons. In phonetics, there is no distinction between voiced and voiceless consonants. **b** and **b'**seems to be allophones, whereas I observed at least 10 possible patterns of correspondence involving **d** and **d'** between the 9 languages. Much more serious is the complex structure of the words. Many different sing./pl. prefixes, not rarily biconsonantal (e. g. **tin-**, **mVdV-**, **nVg-**) are present, sometimes even in combination (e.g. **tin-** + **-b-**), together with some suffixes, which make the recognition of the embedded root quite difficult. It is often necessary to consider all attested languages as well as the plural of nouns in addition to the singular, in order to (perhaps) find where the stem hides. With adjectives, one never knows whether the polymorphic prefix **Vd'** ~ **Vd** is present or not. This rich prefix system looks quite different from the usual NS pattern of affixes.
Here is an example of the difficulty, namely the word for « louse ». The forms are from the following languages (L.) : L1, Mudo (Tulishi) / L2,Yegang (Keiga) / L3, Kufo (Kanga) / L4, Miri / L5, Talla (Kadugli) / L6, Tolibi (Katcha) / L7, Sangali (Tumma). This root is not represented in L8, Krongo, or L9, Talasa (Tumtum). First form cited : singular, second form : plural. Separatives are from Schadeberg (as an exception, the separation **–k** is mine. This is a frequently occurring suffix in languages 1, 2, 4, 5, appearing in several nouns or adjectives such as « bark », « black », « light (adj.) », « one », etc...).
We have, from language 1 to 7 :

1. **tiη-id'iηidi, k- id'iηidi**
2. **tiηindid'i, kidid'i**
3. **tigidigidi, kidigidi**
4. **ti-gidikidi-k, a-gidikidi-k**
5. **kid'ikid'i-k, kid'ikid'i-k**
6. **tiηgidiηηε, kidiηηε**
7. **ciηgidin^{y}i, kidin^{y}i**

The word for "louse" could be analyzed as

- either a ***kiDi** root (D = **d** or **d'**), with complete reduplication in 1, 3, 4, 5 and partial reduplication in 6 and 7 (as well as in 2, in another way). Importantly, in the sing. form of L. 1, **tiη-** should be reanalyzed into the attested **tin-** prefix, followed by **k** as part of the root (the 1st root consonant).
- or a ***DiGi** root (G = **g, k, η, ηη, n^y**), with no reduplication in 6, 7 and partial reduplication in 1, 3, 4, 5 (for 2, I have no good explanation), plus the NS « movable k », located after the prefixes **tin-** (1, 6) ~ **cin** (7) > **tiη** ~ **ciη**. If this 2nd hypothesis was true, it would compare quite well with Ehret n° 746 ***t.'eηkw** (Gumuz **t'oηgwa**, Kunama **tinka**, Berta **d'i :ηi**, pDaju ***tiηgar-**, Nandi **tiηwic**). The occurrence of the typically NS « movable k » has been described by Stevenson and is apparent in

words such as « two » (L.1 : **kaara**, in all others : **eera** and the like) or « river » (L.1, 2, 4 : **kiri** or similar ; L.5 : **kiri ~ ri** ; L. 8, 9 : **ri**).

Another surprising finding is the extreme similarity of the words « hand/arm » and « ear », that can be observed in all 9 languages (except for « hand/arm » which is missing in Kufo). Thus, for example, we have (sg, pl): L.1 **n-iisυ**, **k-isi-nɛ** (« hand/arm »); **n-ɛɛso**, **k-isi-nɛ** (« ear »); L.8 **n-iisυ**, **n-isi-nɛ** (« hand/arm »); **n-ɛaasυ**, **n-isi-nɛ** (« ear ») (separations are mine), etc... In both languages, even the tones in the plural forms are the same in both words ! Thus both roots (something looking like ***VsV**, may be identical or slightly differ just by the vowels). By the way, the sg./pl. prefixes in L.1 (**n-** / **k-**) are very NS-like, but the other languages have **n-**/ **n-**, **n-**/-, or **n-**/**an-**, plus pl. suffix **-nɛ** (except L.2).

Tables. Lexical comparison of Kadu and Nilo-Saharan.

In the following Tables, the major source for Kadu vocabulary was the list published by Schadeberg 1994 (S), which contains 200 basic words plus numerals and pronouns. A few additional words were taken from Ehret 1995 (E) and Bender 1997 (B). The Kadu roots were compared mainly to reconstructed pNS items by Ehret 2001 (E, followed by the root number) as well as to some etymologies published by Bender 1997 (B) or Greenberg 1966 (G). Greenberg 1966 proposes 19 lexical comparisons involving Kadu ("Tumtum") and Niger-Congo, with or without Kordofanian proper (i.e. Heiban, Rashad, Talodi and Katla). Some of them appear in Schadeberg's list, and, for 5 of the latter, a possible alternative NS cognation was found. They are mentioned in the Table under NK. It should be emphasized that several comparisons presented in the Table have already been proposed in the literature. What may be new is the inclusion of the nine Kadu languages and the use of Ehret's pNS reconstructions. Schadeberg's 1994 wordlist is invaluable for presenting each Kadu word in the nine attested languages as well as for providing as often as possible the plural form in addition to the singular one. Stevenson 1991 and Ehret 1995 are of great help for the identification of Kadu prefixes and suffixes.
As far as consonants are concerned, I payed some attention to sound correspondences between Kadu and Ehret's pNS. For non-initial consonants however, pNS ***d** may for instance correspond to Kadu **d'** or **r** ; ***d'** to **l** or **r** ; ***l** to **l** or **r** ; ***r** to **r**, **d** or **l**, etc... In contrast, I worried much less about vowel correspondences and not at all about tone.

For some Kadu roots, several plausible NS cognations (e.g. Black) are proposed. In other instances (e.g. set <31>), I present several Kadu roots together with several NS etymologies, leaving open the question of which Kadu root could be genetically related with which NS reconstruction.

Table 1. Kadu words from Schadeberg

Meaning	**No.**	**Kadu language number (L) as defined in the text above**	**Kadu**	**Nilo-Saharan**	**Comment**
All	<1>	8, 9	**Dulle (t ~ d')**	E887 ***t^{y}id'** **Whole, entire,all**	Valid only if **D** is not a prefix (but L.7 has **agulli** < **ag-ulli** ?)
Ashes 1	<2>	1-7	**$f_1$ud'V**	E593/4 ***pud**	

				Burn/ash E ***p'ud** Smoke	Only in Kir-Abbaian (part of East Sudanic)
Ashes 2	<3>	8, 9	**ndoolo** **n-doolo**	E854/5 ***t'o:l** Smoke (v/n)	
Belly 1	<4>	1-9	**aadi, eedi**	E1286 ***a:r** Intestines	Also NK9
Big	<5>	3-7	**-aab'u-, -abbu, -ab'b'u,**	E62 ***boh** Big	Valid if segmentation is correct L. 3 m-**aab'u-kke** (L.7, similar), L. 4 ad^{y}-**abbu** (L. 5, 6, similar, with ad^{y}- = adj. pref.) Also NK23
Fat (n), oil		1-9	***VVBa (b' ~ b)**	E62 ***boh** Big (Gaam **boi**- get fat)	Requires "fat" (n) = "fat" (adj). Also NK26
Bird	<6>	2-9	**aawi-k, ooi, oyi, waai** a.o. (pl.)	E1563 ***ha:w** Flap, wave (limbs), bird	
Black	<7>	1-6	***d'u(-k)**	E202 ***d'u:** Give off (black) smoke Also G/NS21 e.g. Nandi **tui** Night E1443 ***wa:d ~ * 'wa:d** Grow dark, become night and E1465 ***awa:d ~ * a'wa:d** Night	
Blood	<8>	1-9	***ari(i)-DV (d ~ d')**	E1262 ***re:y** Seep, bleed, blood *G/NS22 e.g. Bari* **kari** Blood,red(ness)	Valid if Stevenson is right (i.e. –DV suffix = disguised pl.). For *discussion of some* Nilotic forms, see under Annexes
Blow (with mouth)	<9>	1, 2, 4-6, 8, 9	**f$_1$ul(l)V-**	E663 ***p^{h}ur** Blow sth out of the mouth	
Bone	<10>	1-9	***guBV (b' ~ b)**	E471 ***gop** Breastbone	Imperfect semantics, NS poorly represented
Brother	<11>	1, 2, 4-6	***(V)re**	B9 ***er-, *ar** Brother, etc...	
Burn (v.) 1	<12>	1-7	**-f$_1$Vn(n)e**	E612 ***p^{h}a:y** Burn (intrans. v.)	Explanation necessary for Kadu **-ne**
Burn (v.) 2	<13>	8, 9	**maada, mad'ure**	G/NC40 e.g. Berta **mo** Fire	Kadu **–dV** may be a verbal suffix
Child	<14>	2	**kan^{y}n^{y}a** (pl.)	E1018 ***k^{h}ayn** Be little, small,	

				young	
Child, girl, boy	<15>	1, 2, 4-6, 8, 9	*BVl- (sg) (b' ~ b), b'iibala (L.6)	G/NS24 e.g. Madi b'ara Child, boy	
Day (light)	<16>	1, 2, 4, 5, 8, 9	u(u)ru(u)	E1386 *wa:r Burn brightly, lightning, shine, white, sun	
Die (dead)	<17>	2-4, 6-9	ay(y)i, yaai, aaya, aae	E1492 *yeh Lie down, die, kill	
Dog	<18>	1-9	*(-)eera	E1422 * 'wa:r Large carnivore	Semantics ? (NS: leopard, hyena, lion)
Dust	<19>	1, 2, 4-6, 9	*(n)tu(n)Gu(ru)(k) (G = γ, k, η, ηg, g)	E502 *ηgor Eath, dust or E425 *g'ur *Dust*	Valid if segmentation is right (but note the absence of –ru in L. 2 & 9)
Earth 1		1	kura'		
Earth 2	<20>	3	b'oon^{y}o	B7 *baN- etc...	
Earth 3	<21>	8	*nab'u*	E 1359 *lap'uh ~ *l.ap'uh	Irregular *l > n in Kadu
Earth 4	<22>	2, 4-7	b'attul, *b'uttul(uk), but^{y}und^{y}ulu	G/NS9 e.g. Murle bur Ashes	Origin of Kadu –ul, -und^{y}ulu ?
Hunger (Stevenson)	<23>	6	iire ~ iiri	E1434 * 'wed Hunger	
Eat 1		1-9	u(u)ri ~ kuri ~ aguri		Movable k in Kadu ?
Food		1, 2, 4, 6, 8, 9	kuri	*or* E1098 *k'ol Chew, mouth, eat	Alternatively, same Kadu root as eat/ hunger ? General comment : what goes with what ?
Bite		1, 4-8	*(a)giDo(o)(nV) (d ~ d')	E430 *g'we:r Eat, bite	
Egg	<24>	1-9	*sule (pl.)	B sole	Sah. Teda only
Eye	<25>	1-9	*V(V)y(y)V, ee	E1486 *ye Eyes	
Fall (v)	<26>	2, 4-6, 8, 9	d'uηge, adiηe, *Vd'iη(g)V	G/NS57 e.g. Kunama dunga To fall	
Few/Small	<27>	1, 3-9	*-itti- ~ -ishshi-	E853 *t'i Very small	*2 related Kadu roots,* difficult to analyze
Fire	<28>	1-9	issi ~ assi ~ ishshi ~ ashshi	E1393 *wa:ys^y ~ wa:ys ~ wa:yθ Light, ignite, fire	
Flow	<29>	1, 2, 4, 6	i(i)s(s)u	E1481 *ya:s *Become thoroughly* wet	
Fly (v) 1	<30>	3-5, 7-9	Vfi(iri)	E571 *per Fly E572 *k^{h}iper	Problem : -iri ending absent in L. 8 & 9

				Bird	
Fog 1	<31>	4, 6	tu-ruuru(-k)	E1268 *ro: Become wet/river	What goes with what ?
River		1, 2, 4, 5, 8, 9	*kV-ri	E1558/9 *har Flowing water/rain	Movable k in Kadu
Give	<32>	1-4, 6, 7, 9	(V)na(a)	E389 *n^{y}o: Give	
Grass 1	<33>	1, 4, 6	aaya, aayo, ooyo	E1496 *yih Grass	
Grass 2	<34>	2, 4, 5, 8, 9	-si, -sa-k	E1214 *s^{y}e ~ se: Grass	
Green	<35>	2,-5, 7-9	*agi(i)r(r)i, ajiiri, rikkiri	G/NS69 e.g. Zaghawa girri Green, yellow	
Guts	<36>	1, 2, 4	*-Vssi	G/CN35 e.g. Nara ish Excrement	Includes also possibly Kadu L.8 kadissi and L.9 –d'isi
Hand, arm	<37>	1, 2, 4-9	*n-i(i)s(s)u	E1237 *o:z Forearm	
Head	<38>	1, 3-9	*VVdu ~ (V)ηVdu	E1290 *ur Head, up	Valid if η < n- sg + movable k. Also NK20
				B dau, do(w) Head	Saharan, For
Hear	<39>	1-9	*(V)f$_1$Vn^{y}V	E632 *p^{h}eη Hear	n^y < *η, cf. Girl
Knee	<40>	4-6	kuugi, etc...	B190 gwog-om, kuk-un Knee, kneel	Koman : Komo, Gule
Kill	<41>	1, 2, 4-9	taana, *VVDaana (d ~ d')	G/NS45 e.g. Kunama ti, tu To die	Kadu –na may be a verbal suffix
Lake	<42>	8	ka-b'uga	E66 *boηk Lake, sea, water	Valid if ka- = movable k
Leaf	<43>	1, 3, 6-8	taaru, t^{y}aaru	B 'durfa, tuuru Deaf, leaf	Kunama, For
Light (in weight)	<44>	1, 2, 4-6	eelaaf$_2$ala-k, f$_2$alef$_2$ale-k, ii-balapala-k, ee-b'alap^{h}ala	E645 *p^{h}o:d' Light in weight, thin	
Liver 1	<45>	1-3, 7-9	(-)n^{y}i ~ -n^{y}en^{y}i ~ -nin^{y}e	B298 For nun^{y}a, Amdang noηgu ; Berta nek'ei ; East Sud. n^{y}o, n^{y}aay Liver	For n- , sg. prefix ? How many distinct roots in both Kadu and NS ? Bender's set not fully valid according to Ehret
Liver 2		4	ki-k		
Liver 3		5-6	niηgi, noηe (pl.)		
Long	<46>	4, 6, 7	aad-uηgoro	E496 *ηge:d' Long	Valid only if aad- is the adj. prefix. But L.6 rather supports *- toηgoro
Louse	<47>	1, 2 ?, 3-9	*ki-DiGi-(k)	E746 *t.'eηkw	Valid only if Kadu

			(d ~ d') (η ~ k ~ g ~ n^{y})	Nit, louse	internal analysis is confirmed, with movable k present (see text)
Man	<48>	1, 3-7	*-i(i)de	G/CN61 e.g. Dongola id Man	
Many	<49>	2	adiηi-ne	E300 *d^{y}'iηk^{h} Much, many E301 *d^{y}'iηk^{h}ir Much	Valid if ad... is not the adj. prefix
Meat	<50>	1-9	*ooDa (d ~ d')	B106 du Meat	Centr. Sud. only having "meat" as meaning
Nail	<51>	3, 4, 7	-shoηgo-ro, -soηgo-ro	B354 *shog, *Sok, *So(η)k	Valid if Kadu –ro is a suffix. According to Ehret's sound laws, should begin with pNS *θ. Also in Shabo. Possible loan from Cushitic / Omotic (B), or the converse ? (cf. Annexes)
Name	<52>	1-9	e(e)re, (e)aara, yaari	E1474 *yad Name	
Neck 1	<53>	1, 3, 4, 6-9	ai, ay(y)i, (i)yye	E1429 * 'wey Neck, nape	
Neck 2	<54>	2, 5	ti-ηir(i)	E *ηud Neck E534 *ηel Neck/tongue	Surma-Nilotic only 2 NS roots ? ("neck" in Kir-Abbaian, "tongue" in pCS, Kunama, Nubian)
New	<55>	8, 9	oodiji, aadigi	G/NS101 e.g. Songay taga New	Valid if aad... is not the adj. prefix
Night	<56>	1, 3-9	-ooso(-k), -oosi-ni, -aashi-nni	E1213 *i:s^{y} Sleep, night	
Nose	<57>	8, 9	a-muunV	E164 *om Smell (v.)	Origin of Kadu –nV ?
Old	<58>	4-6	taru, -duru, -d^{y}aaro	E929 *t$^{y'}$od' Be weak	Ehret's set semantically poor (matches well only with Kanuri cari "old"). Initial not compatible with "milk"
Person 1	<59>	3, 5-7	mdi, VmVd'i	E112 *me:d' ~ me:d. Body, self	
Person 2	<60>	1, 2, 4, 8, 9 (sg) 1-9 (pl.)	sg.: ko(yo), ka, kaau pl.: kudu, *kadu-(gu)	G/NS107 e.g. Kunama ka Person	
Rain	<61>	1, 2	mmi, ammi	E97 *ma ~ ma: Rain, well, water	

Red	<62>	1-4	**ob'b'e, abbi**	B182 **biiba, beb-** Red	Kunama, Berta
Round	<63>	2-6, 8	**(V)d'ugu(u)(lu)**	E200 ***d'oŋk^{h}ol** Roll, round E244 ***ndoŋk** Spin, roll	Problem of Kadu –lu, present in L. 2-6, absent in L.8
Salt	<64>	1, 2, 4-6	**kad'a-l, *tiŋVDa-(la) < *tin-kVDa-(la) (d ~ d')**	G/CN79 e.g. Nuer **kad** Salt	Origin of Kadu –l(a) ?
Sand	<65>	2 8-9	**sesek** **ti-siŋaan^{y}i, ti-siŋeeŋe**	E1151 ***se:k'** Sand	Only one Kadu root **sek ~ siŋ** or 2 distinct roots ?
See	<66>	1, 2	**idi-na, iidu**	B327 **iid-o, di** See	Gumuz, Songhai
Short 1	<67>	1, 2, 8, 9	**add-idi(i)ri ~ ad-id'iiri**	E752 ***t.'il** Short	Valid only if **add-** = adj. prefix. Moreover, **ri** is absent from plural in L.9
Short 2	<68>	4-6	***aduŋo, oot^{y}ugu-t^{y}ugu**	E231/232 **duŋk'w(ur) ~ d.uŋk'w(ur)** Short	Valid if **ad...** is not the adj. prefix
Sky	<69>	2, 3, 8, 9	**d'V(V)-m(a)sal(a)** (L. 3 **d'oo-me**)	B **mosolo, mozolo**	Only in Berta. Kadu **d'V(V)** = "above". Problem : **-l(a)**, absent in L.3
Smoke Fog 2	<70>	2-9 5, 6, 8	***(n)Tiigo (t ~ t^y ~ d)** **diigo, t^{y}iigo**	E203 ***d'ukw** Smoke, ashes	Kadu : 2 variants of the same root
Spear 1	<71>	1, 4-6, 8, 9	***kanDa (d ~ d^y ~ t^{yh})**	B121 ***ga(n)d-** etc... Branch, tree, wood	
Spear 2	<72>	1, 2	**b'oola, b'aala**	B4 **ba(a)l-a, bell-am, *b'el, beL** Branch, spear, stick G/CN90 **be:la, abela, ebela, b'ib'ili** Stick	Koman (Kw), Kanuri, pKuliak, Centr. Sud. Kunama, WNil (Lango), ENil (Turkana, Bari)
Star	<73>	1-9	***mVdiGi(-k) (k ~ g ~ j ~ ŋ)**	B **meddiŋg** Moon, star	Maban only. Caution : **m-** is absent from plural in L.2
Stand	<74>	5	**afiid'o**	E618 ***p^{h}e:d.'** Stand	
Stick (n.)	<75>	6, 8, 9	**kuufi**	E448 ***gob ~ gob'** Pole, stick, wood	
Sun	<76>	1-9	**-ea, (-)a(a)y(y)a, -iiya**	E1521 *** 'ye** Heat, light, warm, burn; fire, sun	
Swell (swollen)	<77>	2, 6, 8, 9	**awo-, uwu, awu**	E1373 ***wa** Grow, full, many, big	

Tail	<78>	1, 2, 4-6, 8, 9	**-ed'i-k, *(-)iidi(-k)**	G/NS133 e.g. **Bulala ile** Tail	Unusual Kadu D ~ NS I sound correspondence
Thick	<79>	4, 5	**assissi-k, essissi**	E306 ***d.'is** Fat (adj.), big, large	Kadu from pNS or borrowing of the Ik reflex **ziz-** ?
Three	<80>	1, 2, 4-9	**((y)VV)Doona (t ~ d ~ d^y ~ d')**	E842 ***oT$_1$wa:nz** Three	
Tongue	<81>	1-9	**(-ηg)VDo(-k)**	E170 ***d.e:h** Speak	
Tree	<82>	1, 2	**-aadi, -g-ad'i**	E942 ***t^y'i ~ t^y'i:** Tree, stalk	L.2 : valid if **taηgad'i** < ***tan-g-ad'i** (**tan-** sg. prefix + **-g-** < movable **k**)
Two	<83>	1-9	**k-aara, ari-ya, eer(y)a, y-aaria ~ n^y-aari**	E1287 ***are** Two	Movable k in L.1
Walk (v.)	<84>	2-5, 7-9	***(V)waa-nV, (ag)(Vηg)wa(a)nV**	E1372 ***wa / *we** Come, go, enter, leave	
Warm	<85>	1, 8, 9	***(-)ala(a)la**	E1342 ***l.eh** Light, candle, hot, cook, burn	
Water	<86>	1-9	**b'ii-di/shi/gi/ji**	E83 ***mbih ~ *mbi:h*** Water	Suffix in Kadu : *disguised pl.* (Stevenson)
Wet 1	<87>	2, 8, 9	**i(i)fi(k)**	E625 ***p^{h}ey** Wet (v.); water	
Wet 2	<88>	1	**iila**	E1547 ***ha:l** Water, rain E1304 ***leh / *lih** Wet (v.), water	
What ?	<89>	1-9	***mV-na, naan(a)**	E248 ***na:** Who, what, that	Good if mV- is a prefix
White	<90>	1, 8, 9	**af$_1$iirV**	E609 ***p^{h}ar ~ *p^{h}a:r** Bright, white	Also NK50
Who ?	<91>	1-9	**bi-da, n-da, m-da, ma-da**	E768 ***ta** Which one, etc...	Kadu 1st element likely a prefix, but no correspondence with that of "what ?" within each language

Table 2. Kadu words from Ehret (E, 1995) or Bender (B)

Meaning	**No.**	**Kadu Language (L.)**	**Kadu**	**Nilo-Saharan**	**Comment**
Eat 2 (E)	<92>	Only L.8 investigated	**-n^{y}o-η**	E387 ***n^{y}o(h)** Bite, eat, food	Also in Shabo
Fly (v.) 2 (E)	<93>	Only L.8 investigated	**-so**	E1241 ***zo ~ so** Run away, flee	
Belly 2 (B)	<94>	1, 5, 8	**to-, tu-**	E798 ***t^{h}a'w** Belly	Bender considered only L. 1, 5, 8
Elbow (B)	<95>	5, 8	**-goor-o, -koor-o**	E1059 ***k^{h}ul** Bend (v., incl. elbow)	Also in Shabo

Girl, maiden (B)	<96>	8	-n^{y}err-i	E536 *ηer ~ *ηe:r Young woman E378 *n^{y}el. Small (incl. boy, girl)	In some NS languages, *η may > n^{y}
Goat / sheep (B)	<97>	5 / 8	dee-, ta	E283 *d$^{y'}$a Goat, sheep, etc...	
Milk (B)	<98>	5, 8	sii-ga, shaa-ka	E909 *t^{yh}a Milk	Incompatible with "old" (outcome of pNS *t^{yh} in Kadu)
Smooth (B)	<99>	8	-tuli-	E856 *t'or Soft	

Starred forms in Kadu are not meant to represent *lege artis* reconstructions in any way. They just indicate some kind of consensus form.

Notes about transcription of etymologies:

- For typographic reasons, it was neither possible to distinguish in the Table closed **e** from open **e** and closed **o** from open **o**, nor to note unusual vowels.
  V in Kadu stands for any vowel.
- For the same reason, tone is not indicated.
- In Kadu, alveolar **t** and **d** were not differentiated from their dental counterpart (see comment by Schadeberg)
- additional signs used to transcribe Ehret's etymologies
  - t (e.g.) = alveolar
  - t. = dental (in Ehret's material)
  - t' = glottalic
  - t^{h} = aspirated
  - t^{y} = prepalatal
  - l^{h} = voiceless l
  - ***dh** = interdental voiced fricative*
- Bender's and Greenberg's etymologies are reproduced as published (except **dh** = interdental voiced fricative and **ẽ** = nasalized **e**)

Note about Kadu f.

3 sets of correspondences involving **f** in Kadu can be found.

Representation	Words	Kadu language								
		1	2	3	4	5	6	7	8	9
f_1	in most	h	f	f	f	f	f	f	f	f ~ (p)f
f_2	light, rain	f	f	f	f	b ~ p	b' ~ p^{h}	f	?	?
f_3	bark (n.)	f ~ ff	f	f	f	f	f	f	f	f

f only (= presumably f_1) was written when diagnostic languages were not represented for a given root.

Discussion. I have assembled here nearly 100 plausible lexical comparisons between Kadu and NS languages. The validity of several of them is conditioned by unsecure internal analysis of Kadu words (i.e. the correct delineation of the stems in the context of numerous affixes). Nevertheless, I consider that this is sufficient to support the hypothesis that Kadu and Nilo-Saharan are somehow related.

<7>
As a possible alternative, one may cite G/NS21 "black". KOMAN : Ganza **tetodo**, N. Mao **tu:ta** . CENTR. SUD. : Lendu **titi**. W JEBEL : Gaam **dui**. TEMEIN : Teis-um-Danab **ntutiŋ** . SNIL. : Nandi **tui**.

<7>
E1443/1465 ***wa:d** ~ * **'wa:d** "grow dark, become night"/***awa:d** ~ * **a'wa:d** "night". *KUNAMA* : **awada** " night". NUBIAN : Nobiin **awa**, pl. **awarii** "night". TAMAN : Tama **wa:r** a.o...."night". W JEBEL : Aka **orooga** a.o."black ; night". SURMIC : SW Surmic ***kor-** "black".
WNIL. : pWNil. ***wa:r** "night". ENIL. : pENil. ***-kewar-** "night", Ateker ***-war-** "to grow dark". RUB : Ik **odo** " day (of 24 hours)".

<8>
E1262 ***re:y** "seep, bleed, blood". CENTR. SUD. : *pCS* ***re** *"to drip"*, MM ***(k)are** "blood". MABAN : Maba **ari** a.o. "blood ; sap". NUBIAN : *Nobiin* ***arree*** *"cataract"*. TAMAN : ***riyaŋni*** *"cold"*. SURMIC : *DM* ****reco'*** *"tear"*. WNIL. : pWNil **ryem** **"blood"** (Ocolo **remo**, etc)*. ENIL. : *Maasai* ***e-reyiet*** *"river"*. SNIL. : *Pakot* ***reyin*** *"dew"*.
* Ehret analyzes the final **–m** as a pNS noun suffix. Fleming (pers. comm.) disagrees and considers forms with **–m** as loans from Dizoid and other Afrasian languages.

<8>
Greenberg G/NS22 presents a partially different set for "blood". KOMAN : Buldiit **kelli** "red". CENTR. SUD. : Madi **(k)ari**, Mangbetu **ali**, Sara **are** "red", Mvuba **goru**. SAHARAN : Daza **gere**, Teda **gore** a.o. "". SONGAY : Songay **kuri**. MABAN : Maba **eri**, Mimi **ari**. NUBIAN : Kenuzi **ger**, Diling **ogur**, Midob **uggur**. NYIMANG : Nyima **wili**, Afitti **ole**. SURMIC : Tirma **koro**. WNIL. : Nuer , Acholi **kwa:r**, Alur **(ma)kwaru** "red". ENIL. : Turkana **eren** "red", Bari **kari** "redness".

<9>
E663 ***p^{h}ur** "blow sth out of the mouth". CENTR. SUD. : ECS ***pwi** "to expel from the mouth ". KUNAMA : **furu-** "to spit out". SAHARAN : Kanuri **feret-** "to spit out". FOR : **fur** "to blow (of wind)". W JEBEL : *Gaam* ***purf-*** *"to blow out water,..." (suspected loan).* BERTA : **ful-** "to blow". NYIMANG : **furud.-i** "to vomit".

<10>
E471 ***gop** "breastbone". CENTR. SUD. : pCS ***gbo** or ***gb'o** "ribcage ". KUNAMA : ***goba*** *"dewlap ; throat"*. ENIL. : Maasai **ol-goo** "chest".

<11>
B9 ***er-**, ***ar**. KOMAN : Kwama **wer-**, **war-** "brother". SAHARAN : Tubu **er-i** "brother". SONGAY : Z. *a.o.* ***ar(y)-u*** *"man, male"*. MABAN : Maba a.o. **-ir** "brother". RUB : Nyangi **er-ec** "friend".

<12>
E612 ***p^{h}a:y** "burn (intrans. v.)". CENTR. SUD. : pCS ***pe** "to burn (intr.)". SONGAY : Z. **feeme** "hearth". NARA : ***feta*** *"moon"*. W JEBEL : *Gaam* ***feedol*** *"early morning before sunrise"*. WNIL. : Naath **pet** "to burn". RUB : Soo **pey** "to roast, burn", Ik **fa-**, **fe-es** "to cook meat and white ants" ; Ik **fet** "sun".

<13>
G/CN40 "fire1". NUBIAN : Mahas **masha** "sun", Dongola and Kenuzi **masi(l)** "sun". W JEBEL : Ingassana **mo** . BERTA : Fazoglo **mo**, Sillok a.o. **ma** . DAJU : Sila **ma:si** . WNIL. : Dinka, Nuer, Shilluk **mac**. ENIL. : Maasai **(en)kima**, Bari **kimaŋ**, Lotuko **(ne)ema**. SNIL. : Nandi **maa**.

<14>
E1018 ***k^{h}ayn** "be little, small, young". KUNAMA : **kennekennema** "weak, thin". SAHARAN : Teda **kinni** "small". SONGAY : Z. **keyna** "to be small ; a little". NUBIAN : Dongolawi **kinna** "small ; young". TEMEIN : **kikenik** "small".

<15>
G/NS24 "boy". KOMAN : N. Mao **meri** "child". CENTR. SUD. : Madi **b'ara**. SAHARAN : Zaghawa **burr** "children". MABAN : Mimi **ma:r**.

<16>
E1386 ***wa:r** "burn brightly, lightning, shine, white, sun". KOMAN : Uduk **awar** "lightning". KUNAMA : **wara-** "to beam, shine, sparkle". SAHARAN : Kanuri **war** "to burn (tr.)". NARA : **wor** " to burn (tr.)". NUBIAN : Diling **ori** "white", **orgad** pl. **warge** "cooked". TEMEIN : **waaraη** "hot". DAJU : pDaju ***oRoη** "sun". ENIL. : Bari **war-an** "to begin to dawn".

<17>
E1492 ***yeh** "lie down, die, kill". CENTR. SUD. : *pCS ***ye** "to lie, be still, stay in place*". KUNAMA : ***i-*** *" to go down, descend"*. SAHARAN : *Zaghawa **e** "to lie*"; Kanuri **yez-** and Kanembu **yey-** "to kill", Tubu **yit-** "to kill". SONGAY : Z. ***kaay** "ancestor"*. MABAN : Maba **-y-** "to die ". TAMAN : Tama, Sungor **-iy-** "to die". ENIL. : Lotuko-Maa ***-ye** "to die".

<18>
E1422 *** 'wa:r** "large carnivore". KOMAN : Uduk **ware'** "spotted". CENTR. SUD. : pCS ***'wa** "wild animal", pECS ***ka'wa** "leopard". SONGAY : Z. **kooro** "hyena". DAJU : pDaju ***oRai** "animal". WNIL. : Jyang **koor** "lion". ENIL. : *Lotuko-Maa ***-waru** "spotted carnivore ", Bari **kwaru** "serval cat" (suspected loans).*

<19>
E502 ***ηgor** "earth, dust". CENTR. SUD. : pCS ***ngo** "earth, soil". SONGAY : Z. ***noηgori** "place".* TAMAN : ***ηguru:k**, Tama **ηuru:k** "earth". SNIL. : *Kalenjin ***ηa:riyam** " iron ore" (loan from Rub).* RUB : Ik **ηor** "ochre", **ηariam** "ironstone".

<19>
E425 ***g'ur** "dust". KUNAMA : **guruda** "fuzz, down, white powder that covers plant and fruit". NUBIAN : Nobiin **gur**, Dongolawi **gu:** "earth". BERTA : ***guri** "field, pasture "*. WNIL. : Burun **gurit** "stone".

<20>
B7 ***baN-** etc... KOMAN : Gumuz Sai **b'an-** "charcoal". KUNAMA : **buη-(w)a** "dust". SAHARAN : Tubu **bon-o** "earth". SONGAY : Gao **bonn-i** "ashes". MABAN : Aiki **ba(a)n^y-** "earth". RUB : Ik **bo-bon** "charcoal".

<21>
E1359 ***lap'uh ~ *l.ap'uh** "soil, earth". KUNAMA : **lafuca, lafuta** "soil, earth". SONGAY : Z. **lebu** "earth, soil, country". WNIL. : Ocolo **labo** "mud, soil, earth,... ". SNIL. : Nandi **lapca** "mud".

<22>
G/NS9 "ashes. CENTR. SUD. : Bongo **burruku**, Keliko **oforago**, Lugbara **ofora**. SONGAY : Z. **boron**. NUBIAN : Nile Nubian **obur(ti)**. BERTA : **bubuda**. SURMIC : Murle **bur**. WNIL. : Shilluk **bur** a.o.

<23>
E1434 *** 'wed** "hunger". CENTR. SUD. : *pECS ***kore** "hunger" (suspected loan)*. FOR : **d-uur** "hunger". SONGAY : Z. **herey** "to be hungry". NUBIAN : pNub ***orig-**, Nobiin **org-** a.o. "to get hungry". DAJU : *pDaju **keRase** "hunger" (suspected loan)*. SURMIC : *DM ***kora'** "thirst"*. ENIL. : *pENil. ***-kure** "thirst"*.

<23>
E1098 ***k'ol** "chew, mouth, eat". CENTR. SUD. : pCS ***k'o** "mouth". KUNAMA : **akalma** "molar tooth". NUBIAN : Hill Nubian ***kol** "to eat ". BERTA : **k'ol-** " to eat".

<23>
E430 ***g'we:r** "eat, bite". KUNAMA : **gurti** "to swallow with difficulty". SAHARAN : Kanuri **ger-** "to eat (hard or tough things)". NUBIAN : Dongolawi **go:r** "to gnaw". W JEBEL : Aka **gurr-** "to bite". ENIL. : Bari **gworoη** "wild beast, carnivore".RUB : pWRub *g'wer "to eat (of cattle), Nyang'i **gwer**, Soo **g'we**.

<25>

E1486 ***ye** "eyes". KOMAN : Uduk **e**, Opo **je** "eyes" ; Gule **yaan** "eye". SAHARAN : Zaghawa **i** "eye". NUBIAN : *Diling **i:-er** "to know"*. W JEBEL : Gaam **ed** "eye". TEMEIN : **keen** "eyes". ENIL. : *pENil. ***-yen** "to know"*.

<26>
G/NS57 "to fall 1". KUNAMA : **dunga**. MABAN : Maba **(d)onguni**, Mimi **dungel**. NUBIAN : Kenuzi **digir(e)**, Dongola **digir**, Dilling **tiŋer** a.o. TAMAN : Merarit **dug(ney)**. ENIL. : Lotuko **doxi(no)**.

<27>
E853 ***t'i** "very small". KOMAN : Uduk **t'iyat'i** "thin, tiny person, tiny in general, etc...". FOR : **itti** "small". ENIL. : Maasai **-oti** "small".

<28>
E1393 ***wa:ys^{y} ~ wa:ys ~ wa:yθ** "light, ignite, fire". SAHARAN : Kanuri **was** "to ignite, light", **kausu** "sun-heat". MABAN : Maba **wosik** "fire". NARA : **kos** "sun".NUBIAN : Midob **ussi** " fire ". TAMAN : Merarit **usugu** "fire".

<28>
See also G/NS61 "fire". KOMAN : Koma **wutti**, Uduk **ot**. CENTR. SUD. : Madi **ori**, Mangbetu **ru**, Moru **(k)uri**, Keliko **ru**. SAHARAN : Berti **azza**. FOR : **uto**, **udu**. MABAN : Maba **uosi(k)**, Mimi **su**. NUBIAN : Midob **ussi**, Gulfan **e:s**. ENIL. : Maasai **isui** "burn".
Both Bender and Ehret consider that this etymology is heterogeneous and should be dismembered (e.g. E1393 ***wa:ys^{y} ~ wa:ys ~ wa:yθ** "light, ignite, fire", E1211 **s^{y}we** "to burn", and E1421***want'** "fire").

<29>
E1481 ***ya:s** "become thoroughly wet". KOMAN : *Uduk **yesayes** "slippery, smooth"*. KUNAMA : **assa-** "to float, float up abundantly". SONGAY : Z. **yeesi** "to quench thirst". NUBIAN : Dongolawi **ess-** "water".

<30>
E571 ***per** "fly", E572 ***k^{h}iper** "bird". SAHARAN : Teda **kebri** "bird". SONGAY : Z. **cirow** "bird". MABAN ; Maba **ber-ire** "to fly", **kebelek** "wing". NARA : **kerba** "bird". W JEBEL : Gaam **perd-**; Aka **pir-**, Molo **fir-** a. o. "to fly"SURMIC : DM ***kibaR-**, Kwegu **kuber** "bird". WNIL. : Ocolo **ober** "wing". For E572 ***k^{h}iper** *"bird", partial overlap with* G/NS18 "bird".

<31>
E1268 ***ro:** "become wet/river". KOMAN : Gule **rus** "wet ; rain". CENTR. SUD. : pECS ***ru** "to be moist". KUNAMA : *du- "to ford"*. FOR : **roo** "river". W JEBEL : Aka, Molo **aro** "rain". BERTA : **rro** "rain". SURMIC : *Kwegu **rroku** "to swim"*. ENIL. : *Maasai **-rot** "to have diarrhea"*, Bari **ro-ju** "to refresh (with water). SNIL. : Nandi **ro:t** "to flow (of water)". RUB *: Ik **row** "plain*".

<31>
E1558/9 ***har** "flowing water/rain" (1558 and 1559 differ by tone). FOR : **ara** "rain". SONGAY : Z. ***hargu** "cold"*, **hari** "water, rain". NUBIAN : pNub ***ar-**, Dongolawi **aru**, Kadaru **ara**, Diling **are** "rain". TAMAN : Tama **ariŋ** "pool, river", **arr** "rain". W JEBEL : Gaam **arad** "seep, spring". NYIMANG : **ariŋe** "water". pNIL. : ***aR** "to flow". ENIL. : pENil ***-kare** "river", Ateker ***-kar** "pool". SNIL. : Kalenjin ***aR** "überqueren, durchqueren", pSNil ***aRin** "river". RUB : Ik **har** "diarrhea".

<32>
E389 ***n^{y}o:** "give". SAHARAN : *Kanuri **not-** "to commission, send, make use (of arms)"*. SONGAY : Z. **no** "to give". MABAN : Maba **-nyo-** "to give", **nyok** "gift". SURMIC : S.Surmic ***-n^{y}o** "to give". WNIL. : Jumjum **en^{y}e** "to give". Similar in part to G/NS64 "give".

<33>
E1496 ***yih** "grass". KOMAN : Gule **eyi** "green". CENTR. SUD. : pECS ***yi**, Baledha **i** "grass". FOR : **dai** "grass". MABAN : *Maba **koiek**, pl. **kon^{y}i** "leaf ; ear"*. ENIL. : *pTung'a ***-kwi-**, Teso **a-kiot**, pl. **a-kwii** a.o. "leaf"*.

<34>

E1214 *s^{y}e ~ se: "grass". CENTR. SUD. : pECS *sye ~ *se ~ *θe "grass". KUNAMA : **sena** "grass, fodder, hay". SAHARAN : Kanuri **sheshe** "grass with tasseled top, used for horses".

<35>
G/NS69 "green". SAHARAN : Kanuri **keri** ; Zaghawa **girri** "green, yellow" ; Daza **kuli** "yellow". SONGAY : Gao **kukurey** "become yellow", **kara(nta)** "yellow". BERTA : **gure**. ENIL. : Lotuko **igara**.

<36>
G/CN35 "excrement". CENTR. SUD. : Bulala **isi**, Bongo **ishi**, Moru **ze**. NARA : **ish**. TAMAN : Sungor **ishi**.

<37>
E1237 *o:z "forearm". SAHARAN : Kanuri **za** "length of measure from elbow to tip of middle finger". FOR : **ooz** "five". NUBIAN : _Dongolawi **oss-** "leg, foot"_. SURMIC : _Kwegu **jo**, Zilmamu **sho**, Murle **dho:** "foot, leg"_. RUB : _Soo **ot** "forearm" (suspected loan)_.

<38>
E1290 *ur "head, up". KOMAN : _Uduk **ure'** "lump (swelling on body)"_. CENTR. SUD. : pECS *ru "up". NUBIAN : pNub *ur, Nobiin **ur** "head". TAMAN : Merarit **ure:** "head".

<38>
G/NK20 "head". NIGER-CONGO : KWA Akpafu **iti**, Twi **eti**, Ibo **isi**. BENUE-CONGO Piti **(li)te**, Koro **etso**, p-Bantu *-to ~ *-toi. ADAMAWA EAST. Nielim **su**, Daka **ti(i)**, Mono and Lakka **tu(l)**.

<39>
E632 *p^{h}eŋ "hear". KOMAN : Kwama **-piŋ** "to hear" _(suspected loan because of the vowel !)_. SAHARAN : Kanuri **fan** "to hear, understand, etc...". W JEBEL : Gaam **fiŋen-** "to hear". WNIL. : Jyang-Naath *piŋ "to hear".

<41>
G/NS45 "to die". CENTR. SUD. : Madi, Logo **d'i** "to kill" ; Lendu **dhe**. KUNAMA : **ti**, **tu**. MABAN : Maba **tyo**, Runga **tye** "dead". NARA : **di**. NUBIAN : Nile Nubian **di:**, Dilling a.o. **ti**. WNIL. : Dinka a.o. **tou**. ENIL. : Bari **tuan**, Maasai **tua**

<42>
E66 *boŋk "lake, sea, water". SONGAY : Z. **baŋgu** "lake, sea". MABAN : _Maba **boŋo** "mucus, snot"_. TEMEIN : **muŋ** "water". NYIMANG : Nyimang, Dinik **boŋ** "water".

<44>
E645 *p^{h}o:d' "light in weight, thin". KOMAN : **p^{h}od'ap^{h}od'** "light in weight". MABAN : *p^{h}urd- , Maba **furdak**, Mimi **purdak** "thin". W JEBEL : _Gaam **foroj** "few, less, little" ; Aka **pordora** a.o. "weak"_. WNIL. : Ocolo **pot** "slim, slender, thin (person)". RUB : Ik **fofod-** "to be weak, light" (loan ?)

<46>
E496 *ŋge:d' "long". KUNAMA : **gera** "long". SAHARAN : Kanuri **njerere** "very thin and long". NARA : **ngir-** "long". WNIL. : Ocolo _**ŋedo** "size (with respect to thickness)"_.

<47>
E746 *t.'eŋkw "nit, louse". KOMAN : pGumuz *t'eŋgwa, Sese **t'eŋwa**, Gumuz **t'oŋgwa** "louse". KUNAMA : **tenka, tinka** "nit". W JEBEL : Gaam **jind**, pl. **jiŋg** "louse". BERTA : **d'i:ŋi** "louse". DAJU : pDaju *tiŋgar- "louse". SNIL. : Nandi **tiŋwic** "mosquito".

<48>
G/CN61 "man 1". CENTR. SUD. : Dindje, Kaba **de** ; Baka **oda** ; Kreish **uddu**. NUBIAN : Dongola **id**, Old Nubian **it** . TAMAN : **eite**. BERTA : **ide**. SURMIC : Didinga **et**.

<49>
E300 *d^{y}'iŋk^{h} "much, many", E301 *d^{y}'iŋk^{h}ir "much" (E301 : contains the pNS *r modifying affix). KOMAN : Gumuz **d'ega** "much, many". KUNAMA : _**dingira** "thick, fat, swollen"_. NUBIAN : Dongolawi

__digri__ "much, many". SURMIC : _Murle **adiggir** "big" (suspected loan)_. ENIL. : Teso __-dikidik__ "to be frequent". RUB : Ik __zuk__ "very".

<51>
B354 __*shog, *Sok, *So(η)k__. KOMAN : _pKoman ***shog** "foot or hoof or paw"_. Gumuz __cogwa ~ cugwa ~ c'ogwa__ "claw". CENTR. SUD. : __tsokwa, θokpa__ "claw, finger ". KUNAMA : __shok-oina__ "claw". SAHARAN : Tubu __shoη-kol__ "claw". FOR : _Amdang **sog-ol** "foot or hoof or paw "_. EAST SUD. : __shokna, shuk-om__ "claw". RUB : Nyangi __sag__, Soo __sak__ "claw".
But also Cushitic **saγ^w**", Omotic **ts'ukum** "claw, hoof, nail (Bender).

<52>
E1474 __*yad__ "name". KOMAN : Uduk __yer__ "name". KUNAMA : __kida__ "name". FOR : __kario__ "name". MABAN : _Maba **-er-** "to speak"_. NARA : __ade__ "name". NUBIAN : Dongolawi __err(i)__ "name". pNIL. : _***ka:Rin** "name" (suspected loan)_. WNIL. : _Jyang **rin** "name" (suspected loan)_. ENIL. : _Maa ***-kama** "name" (suspected loan)_. SNIL. : _pSNil ***ka:Rin** "name" (suspected loan)_. RUB : Ik __ed__, Soo __yed__ "name". Similar to G/NS97 "name".

<53>
E1429 __* 'wey__ "neck, nape". FOR : __kwi__ "neck". NUBIAN : pNub __*eye__, Nobiin __iyyi__, Diling __e:__ a.o. "neck". TAMAN : Tama __e:wit__ "nape".

<54>
E __*ηud__ "neck". Limited to Surma-Nilotic. No individual forms given.

<54>
E534 __*ηel__ "neck ; tongue".
1. CENTR. SUD. : pCS __*(n)dre__ "tongue". KUNAMA : __ηela__ "tongue". NUBIAN : pNub __*ηalt.__, Hill Nubian __*jald.__, Birgid __natti__, Nobiin __nar__, Midob __kada__ "tongue". NYIMANG : _**ηildi** "tongue" (suspected loan)_.
2. W JEBEL : Gaam __ηalg__ "neck". Aka __ηaalo__, Molo __ηalu__ a.o. "neck". BERTA : _**ηelu** "voice"_. TEMEIN : __ηalo__ "neck". DAJU : pDaju __*ηaase__ < __*ηalse__ " neck".
3. SAHARAN : _Kanuri **ηgalηgal** "collarbone"_.
Partial overlap with G/NS140 "tongue".

<55>
G/NS101 "new". KOMAN : Buldiit __ntaiki(s)__. SAHARAN : Daza, Teda __eski__ "new, young". SONGAY : Gao __taga__, Z. __itegi__.

<56>
E1213 __*i:s^y__ "sleep, night". KOMAN : Uduk __ish__ "to sleep". _Gumuz **ish** "to sit"_. MABAN : Maba __ishe__ "night". NARA : __kishe, kishne__ "night". NUBIAN : _Dongolawi **ishk-** "to sit"_. DAJU : _pDaju ***ish-** "to stand"_. ENIL. : _Maasai **-ishu** "to live"_.

<57>
E164 __*om__ "smell (v.)". CENTR. SUD. : pCS __*mo__ "to sniff ; nose". KUNAMA : __amomota__ "conferva§ di acqua putrida". W JEBEL : Aka __umoodi__ "face", Molo __muudi__ "face", Kelo __muudi__ "nose". BERTA : __amuη__ "nose". NYIMANG : __omud.u__ "nose". DAJU : pDaju __*moone__ "nose". SURMIC : Larim __amu__ "to smell". pNIL. : __*um__ " nose". WNIL. : pWNil __*wum__ "nose". ENIL. : pENil __*kume__ "nose". RUB : Ik __omol^h__ "dry nasal mucus".
§ Italian _conferva_ designates a kind of algae.

<58>
E929 __*t^{yh}od'__ "be weak". _KUNAMA : **shoro-** "to be disappointed"_. SAHARAN : Kanuri __cari__ "old ; old man". SONGAY : _Z. **taru** "to be tasteless, insipid, watered down"_. NYIMANG : _**t.or** "lime"_. WNIL. : _Ocolo **cwät** "tasteless ; perplexed"_. RUB : _pRub ***cod'-** "to be lame"_.

<59>
E112 __*me:d' ~ me:d.__ "body, self". KOMAN : Uduk __med'__ "self". CENTR. SUD. : pCS __*ndi__ "body, self".

<60>

G/NS107 "person 2". CENTR. SUD. : Lendu **ke**. KUNAMA : **ka**. SAHARAN : Kanuri **kwa**, Kanembu **koa**. SONGAY : **-koi** "person who (agent)". MABAN : **kai** "people". NARA : **ku**. NUBIAN : Mahas **ko:**, **koi** "master, possessor, cf. German *Herr*". BERTA : **hoa** "people". NYIMANG : Nyima **kwai** "man". WNIL. : Dinka **koi**.

<61>
E97 ***ma ~ ma:** "rain, well, water". CENTR. SUD. : pCS ***ma** "to rain". SAHARAN : Zaghawa, Berti **ma** "well". DAJU : pDaju ***ma** "water". SURMIC : pSurmic ***ma** "water".

<63>
E200 ***d'oŋk^{h}ol** "roll, round ; to curve, bend". KOMAN : Uduk **d'aŋkal** "to roll something heavy...", **d'aŋkalid' ~ d'aŋkalad'** "to roll (of ball)". SAHARAN : *Kanuri* ***deŋgeles*** *"role of grass supporting roof of round house"*. DAJU : Sila **d'okolde** "elbow". WNIL. : Ocolo **dol** (open **o**) "to bend,...", **dol** (closed **o**) "circular ring of grass used in roof of house", **dul** "to coil". ENIL. : *Teso* ***ai-dol*** *"to coil, fold,..." (suspected loan)*. RUB : Ik **d'ukud** "round".

<63>
E244 ***ndoŋk** "spin, roll". SAHARAN : Kanuri **ndak, ndok** "to spin in fingers". WNIL. : Naath **doŋ-...ro** "to roll about". ENIL. : *Bari* ***duduŋ-ga*** *"to swagger (in walking)"*.

<64>
G/CN79 "salt". CENTR. SUD. : Sara **kate**, **kata**, Mangbetu **gandju**. KUNAMA : **kunda**. WNIL. : Nuer **kad**, Anuak **kado**, Dinka **kada**, Shilluk **ka:do**.

<65>
E1151 ***se:k'** "sand". SAHARAN : Zaghawa **sigge** "sand". MABAN : Mimi **siki** "sand". NUBIAN : Dongolawi **esked** "loose earth, crumbled soil, dust"". W JEBEL : *Kelo* ***ceek^y*** *"sand" (suspected loan)*. BERTA : **she:k'e** "sand". DAJU : pDaju **sekk-** "earth". Partial overlap with G/NS114 "sand".

<67>
E752 ***t.'il** "short". KOMAN : Uduk **t.'ilat.'il** "narrow (of opening)". CENTR. SUD. : Lugbara **katri** "short, dwarfish". DAJU : pDaju ***teleŋ** "short".

<68>
E231/232 **duŋk'w(ur) ~ d.uŋk'w(ur)** "short" (E232 : contains the pNS ***r** adj. suff.). KOMAN : Gumuz Gojjam **duqua** "short". CENTR. SUD. : pCS ***du** "short". SAHARAN : Kanuri **dugugur** "very short". SONGAY : Z. **duŋgura** "to be short". W JEBEL : Gaam **duur-** "to be short". BERTA : ***d'uguri*** *"short" (suspected loan)*. ENIL. : Maasai **dukuny** "short".

<70>
E203 ***d'ukw** "smoke, ashes". KOMAN : *Uduk* ***mon-d'uhud'*** *"dustiness (of air), sandstorm, fogginess"*. Gumuz **d'u:kwa** "smoke". SONGAY : Z. **dugu** "parfumer en brûlant ; encens". NUBIAN : *Dongolawi* ***dug*** *"to become clouded, overcast"*. W JEBEL : Gaam **duug** "ashes". SURMIC : Me'en **d'uka** "ashes". RUB : Ik **d'ukum-** "to disintegrate as a result of overcooking".

<71>
B121 ***ga(n)d-** etc...KOMAN : Gumuz Sese **gun-a** "tree or wood". SAHARAN : Kanuri **gan^y-a** "tree or wood". SONGAY : Gao **–gandy-i** "tree or wood". MABAN : Masalit **gend-** "branch".

<74>
E618 ***p^{h}e:d.'** "stand". KOMAN : Uduk **p^{h}ed'** "to stand". *Gumuz Sai* ***fed'a*** *"to rise"*. CENTR. SUD. : Mangbetu **–eepira** "to remain a long time, last". SAHARAN : *Kanuri* ***fere*** *"to emerge"*. NUBIAN : *Diling* ***hej*** *"wake up"*. BERTA : ***fe:d'*** *"to want, look for, hunt"* ; ***p'e:l-*** *"to stand, wait" (suspected loan)*. NYIMANG : ***fed.in*** *"to find "*.

<75>
E448 ***gob ~ gob'** "pole, stick, wood". CENTR. SUD. : pCS ***gbo** "tree, bush, wood)". SONGAY : Z. **gobu** "stick". NUBIAN : Dongolawi **joww-** "tree".

<76>

E1521 * 'ye "heat, light, warm, burn; fire, sun". KOMAN : Uduk **yit.^{h}** "to heat metal, water". CENTR. SUD. : pCS ***'ye** "to light", pECS ***'ye** "day". KUNAMA : **yau-** "to shine, flash", **in-** "to warm oneself at the fire, in the sun", Ilit **i(y)-** "to burn". SAHARAN : Zaghawa **ye** "fire". FOR : **di** "ash". MABAN : *Maba **aek**, pl. **ae** "moon"*. NUBIAN : pNub ***i:k** "fire". TAMAN : *Tama **ayid** "moon", **koye** "charcoal"*. BERTA : ***is'u** "star"*. SURMIC : Murle **i:** "sun", *Majang **e:yen** "moon"*.

<77>
E1373 ***wa** "grow, full, many, big". CENTR. SUD. : Lugbara **waa** "to be fully developed (of fruits)". KUNAMA : **wamia** "complete, whole, full". NYIMANG : ***kwo** "leaf"*. DAJU : pDaju ***wei** "many". ENIL. : Bari **wa-ju** "to widen (gaps, openings)". SNIL. : pSNil ***o(:)** "big". RUB : Soo **wa'** "big.", **iwat-** (to grow (of people), a.o.

<78>
G/NS133 "tail". CENTR. SUD. : Bulala **ile**, Disa **akela**, Nduka **kila**, Dendje **kela**. MABAN : Maba **olu(k)**. NUBIAN : Kondugr **ile**. SURMIC : Longarim, Didinga **kula'**. WNIL. : Dinka **yol**. ENIL. : Teso **ekori**.

<79>
E306 ***d.'is** "fat (adj.), big, large". KOMAN : *Uduk **dit^{h}adit^h** "heavy" (suspected loan).* NUBIAN : *Dongolawi **des** "fat of milk, vegetable oil".* WNIL. : Naath **dit** "big, large, great". RUB : pRub ***'jis** "fat (adj.), Ik **ziz-** "to be fat".

<80>
E842 *oT$_1$wa:nz "three". KOMAN : Opo **otus^{y}u**, Kwama **twazan**, S. Kwama **twa:s** "three". CENTR. SUD. : pCS ***ota** "three". SAHARAN : *Daza, Teda **tozo** "four".* NUBIAN : Dongolawi **tosk-**, Diling **tojog**, Kadaru **t.ojjog**, Nobiin **tusko** "three".

<81>
E170 ***d.e:h** "speak". KOMAN : Gumuz **de:** "to say". CENTR. SUD. : pCS ***di** "to speak loudly". KUNAMA : **-d-** "to say". FOR : **ri-** "to speak". SONGAY : Z. **deede** "to announce, declare,...", **deene** "tongue". ENIL. : Bari **d'in-dya** "to pronounce, call by name". RUB : Ik **id'eid'-** "to report one detail *after another, tell out one by one*".

<82>
E942 ***t^y'i ~ t^y'i:** "tree, stalk".CENTR. SUD. : pCS ***t^y'i** "lower trunk, tap root". KUNAMA : **sha** "sorghum stalk". W JEBEL : Aka **keca**, Molo **kesa**, Kelo **keja** "tree". BERTA : **s'is'ia** "tree, plant".

<83>
E1287 ***are** "two". CENTR. SUD. : MM ***are** "two". SAHARAN : Kanuri **araske** "six" (< ***ar-yaske** "two-three"). NARA : **are(ga)** "two". NUBIAN : Dongolawi **ari** "twenty", Nobiin **aroo** "two". NYIMANG : Nyimang **ar(m)ba**, Dinik **armak** "two". SURMIC : S.Surmic ***rama** "two". pNIL. : ***aRe** "two". WNIL. : pLuo ***ariyo**, Burun **are** a.o. "two". ENIL. : pENil ***are** "two". SNIL. : pSNil ***aRe:n^y** "two". Similar to Greenberg G/NS142 (who adds Songay **kari** "twins").

<84>
E1372 ***wa / *we** "come, go, enter, leave". KOMAN : Gumuz ***we** "to come". CENTR. SUD. : pCS ***wa** "to move about". KUNAMA : **wa-** "to leave", **u** "to enter", **wa** "entrance". FOR : **weiŋ-** "to come back". NARA : **wo:** "to come". W JEBEL : Gaam **wei-** "to come out, go, move". DAJU : pDaju ***wed-** "to go", **wun** "to come". pNIL. : ****wat** "to start out".* WNIL. : *Ocolo **wat** "to start out "*, **wät^y** "to reach, arrive". ENIL. : *Teso **-wotokin** "to depart, advance"*. Maasai **wou** "come". SNIL. : Kalenjin ***we:t** "to go".

<85>
E1342 ***l.eh** "light, candle, hot, cook, burn". KOMAN : Uduk **ad.ed.e'** "wand for lighting fire by friction". CENTR. SUD. : pCS ***le** "to light, light up". KUNAMA : **le-** "to light a fire". NYIMANG : Nyimang **leu**, Dinik **lawe** "to cook". WNIL. : Ocolo **let.** "hot", **lew** "hot season", **len.** "to heat up, become hot". SNIL. : Kalenjin ***lyel** "to make lightning, to flash". RUB : pRub ***leu'j**, Ik **leuz** "to burn (intr.)", Soo **loy** "charcoal".

<86>

E83 ***mbih ~ mbi:h** "water". CENTR. SUD. : pECS ***mbi** "small body of water". KUNAMA : **bia** " water". SAHARAN : Zaghawa **bi**, Berti **mi** "water".

<87>
E625 ***p^{h}ey** "wet (v.); water". KOMAN : Uduk **p^{h}i**, Komo **pe**, Opo **pii** "to drink". Gumuz ***f-** "to drink". SAHARAN : Kanuri **fi** "to pour out". NARA : **fafe** "rushing stream". W JEBEL : Gaam **feg** "water". Aka **peeg-**, Molo **foogen-** a.o. "to pour". BERTA : **firi, fere** "water". pNIL. : ***pey** "water". WNIL. : pWNil ***pi(k)** "water". ENIL. : pENil ***-pi-** "water". SNIL. : pSNil ***peR** "water". RUB : Ik **fe-** "to bath".

<88>
E1547 ***ha:l** "water, rain". KOMAN : Uduk **a'al** "pool", **halas** "to cover with water". FOR : ***daalu* "mud"**. NARA : **hala:** "rain". TAMAN : Tama **kaal**, Merarit **kara** "water", Sungor **kal** "rain"

<88>
E1304 ***leh / *lih** "wet (v.), water". KOMAN : Uduk **li'ali** "wet, damp, moist". CENTR. SUD. : pCS ***le** "to trickle, seep, flow". SAHARAN : *Kanuri **kali** "pus, discharge"*, **keli** "fresh, green, newborn, not ripe, wet". FOR : **li-** " to wash". NUBIAN : Dongolawi **dette** "to drip, fall in drops" ; *Nobiin **diis** "blood"*, **deeg-** "bewässern". WNIL. : Ocolo **lewo**, Jyang **leuleu** "to be soft, watery". ENIL. : *pENil ***-li-** "to filter, strain", ***le** "milk"* ; Maasaii **enk-oilioolio ~ enk-oilileelio** "dew" ; Teso **–lele** "to flow". RUB : Nyang'i **l^{h}eu** "river ; well", **l^{h}iatu** "spittle".

<89>
E248 ***na:** "who, what, that". CENTR. SUD. : pECS ***na**. KUNAMA : **na-** . SAHARAN : Zaghawa **na**. NARA : **na**. NUBIAN : Nobiin **na, naay**, Diling **na**.TAMAN : Merarit **na**. W JEBEL : Gaam **na, nai**. BERTA : **naano**. SURMIC : pSWSurmic ***an-** . SNIL. : pSNil ***ne**. RUB : Ik **na**, Soo **na, nan**. Not all forms cited here. See also G/NS152 "who?"

<90>
E609 ***p^{h}ar ~ *p^{h}a:r** "bright, white". KUNAMA : **fallada** "glitter, sparkle". MABAN : Maba **fafarak**, Runga **farr** "white". NYIMANG : **fefer** "very white". DAJU : pDaju ***papaR-** "white". ENIL. : *pENil ***paran** "day(time)" (suspected loan)*. Largely overlaps with G/NS150 "white"

<90>
G/NK50 "white". KORDOFANIAN (EXCL. KADU) : TALODI Masakin **ipu**.
NIGER-CONGO : W ATLANT. Dyola **fur**, Limba **fufu**, Gola **fua**. MANDE Mende **puru**, Sya **foro**, Boko **pura**. GUR Awuna **põa**, Sisala **pula**, Mossi **pel(γ)a**. KWA Adele **fu**, Ewe **fu**, Twi **fufu**. BENUE-CONGO Efik **fua ~ fia**, Bute **eburi**, Tiv **pupu**. ADAMAWA EAST. Mumuye **puru**, Mbum **fu**, Vere **bule**, Ngbandi **vulu**.

<91>
E768 ***ta** "which one, where, when, how much...?" KOMAN : Uduk **ata**. TAMAN : **ta-gri, te-ŋoi** . W JEBEL : Molo **in-de**, Kelo **in-te**. SNIL. : Nandi **ata**. RUB : Soo **ita**, Ik **n-ta** a.o. Not all forms cited here.

<91>
Compare also with G/NS148 "what ?". KOMAN : Uduk **dadi**. CENTR. SUD. : Bagirmi **di**, Madi **ad'u** ; Kreish **adde** "where". SAHARAN : Daza **ndi** ; Kanuri **ndu** "who". SONGAY : Z. **de**. NUBIAN : Kordofanian Nubian **de** "who". WNIL. : Jur **di**, Shilluk **adi** ; Nuer **(i)di** "how". ENIL. : Bari **(a)da** "how".

<92>
E387 ***n^{y}o(h)** "bite, eat, food". CENTR. SUD. : pCS ***n^{y}o** "to eat", ***an^{y}o** "food". KUNAMA : **Ilit nya** "to bite". SAHARAN : Kanuri **nana** "to gnaw on". MABAN : Maba **-nya** "to eat", **nya** "food", Mimi **nyo** "mouth". SURMIC : pSurmic ***an^{y}o** "louse". pNIL. : ***n^{y}o:k** "louse".

<93>
E1241 ***zo ~ so** "run away, flee". KOMAN : Uduk **so** "to run, flee". KUNAMA : ***so-* "to drive to pasture, look after"**. MABAN : Maba **-so-** "to desert, flee". NYIMANG : ***so* "to hide"**.

<94>
E798 ***t^{h}a'w** "belly". KOMAN : Kwama **to:to** "liver". CENTR. SUD. : pCS ***to** "stomach", pECS ***oto** "navel". FOR : **diito**, pl. **kiitoŋa** "belly". SONGAY : Z. **tu** "placenta". MABAN : Maba **tabuk**, pl.

tabusi "belly". NARA: **tawa** "belly". NUBIAN : Nobiin **tuu** "belly". W JEBEL : *Kelo* ***teete*** *"liver" (look-alike ? loan ?)*. ENIL. : *pENil* ****-tau**, Maasai* ***ol-tau*** *"heart".* SNIL. : Nandi **ketoe** "abdomen".

<95>
E1059 ***k^{h}ul** "bend (v., incl. elbow)". KOMAN : Uduk **k^{h}ululak^{h}ulul** "bent, crooked". KUNAMA : **ukunkula** "elbow". SAHARAN : Kanuri **kela** "to roll into a ball", **kele** "to wrap around". SONGAY : Z. ***kulla-kulla*** *"to have knock-kneed walk"*. WNIL. : Ocolo **kul** "to bow the head". RUB : *Ik* ***ikukul-*** *"to go the wrong way and come back" (suspected loan).*

<96>
E536 ***ŋer** ~ ***ŋe:r** "young woman". KOMAN : Uduk **nyara** "youg girl, maiden". CENTR. SUD. : pCS ***ndre** "mother". WNIL. : Naath **nyier** "girl", Jyang **nyir** "girls". RUB : pRub ***ŋer** "girl".

<96>
E378 ***n^{y}el.** "small (incl. boy, girl)". CENTR. SUD. : pCS ***n^{y}e** "small". MABAN : Maba **nyelik** "small ; junior, younger". W JEBEL : Gaam **n^{y}aan**, pl. **n^{y}alg** "narrow, small, young", **nyili** "childhood" a.o. Aka **n^{y}iila**, Kelo **n^{y}eela** "boy". WNIL. : Naath **nyal**, Ocolo **nyan** "girl" ; Ocolo **nyel** "boy" ; pLuo ***n^{y}an** "new", Jyang **nyal** "new". ENIL. : Maasai **-ŋejuk** "new". SNIL. : pSNil ***n^{y}al^{y}e:l^{y}** "new".

<97>
E283 ***d^{y}'a** "goat, sheep, etc..." CENTR. SUD. : Baledha **dha** "daughter ; niece, nephew ; young female animal". SONGAY : Z. **zan** "heifer". MABAN : Maba **jok**, pl. **josi** "goat". NARA : **du** "sheep". WNIL. : Jyang **dou** "heifer". SNIL. : Datoga **daye:nda** "kid, lamb".

<98>
E909 ***t^{yh}a** "milk". SAHARAN : *Kanuri* **cam** "milk". NARA : **sa** "milk". WNIL. : *pWNil* ***cak** "milk".

<99>
E856 ***t'or** "soft". KOMAN : Uduk **t'orocat'oroc'** "very soft, mushy". KUNAMA : ***tolle-*** *"be soft" (suspected loan).* SURMIC : DM ***colok** "soft".

A comment on Ehret's methodology. Since most comparisons presented in this paper are based on Ehret's reconstructions, such a comment has its place here. Ehret's 2001 book represents, I believe, the best attempt up to now to reconstruct pNS. It contains enough good material to definitively convince those who are still doubting that NS is a valid phylum. It also provides an excellent starting point for comparative work, as examplified here. I have some reservations, however. First, I do not share Ehret's faith in the existence of exceptionless sound laws for reasons brightly summarized by Greenberg in his latest and unfortunately last book, pp. 4-5. Thus, in many etymologies, Ehret cites items he considers as loans, just because the very strict sound laws he has established are violated. I believe on the contrary that quite often we are dealing with genuine pNS reflexes displaying irregular sound correspondences rather than with hypothetical loans. Second, I estimate that about 30 % of Ehret's reconstructions are invalidated or weakened by far-fetched semantics (cf. items in italics in the Annexes). Finally, his 1995 paper on Kadu (and Shabo) illustrates the erroneous conclusions that can be drawn when considering only one language of a family (in this case Krongo) rather than all those attested. Thus, about pronouns, he states a.o. that, in the plural, the 1st person exclusive **oow** is a later addition to the system in which the 1st person inclusive is **aηηa**. Had he looked at Yegang, Kufo, Miri, Talla and Tolibi, he would have seen that in these languages at least, the exclusive pronoun just differs from the inclusive one by a vowel change, namely **a** to **o** (e.g. Kufo **aηηa** *vs* **oηηo**, Yegang **aηa** *vs* **aηυ**, etc...). He also states that, in the plural, the person is marked by a difference in the consonantal pattern, 1st incl. Krongo **aηηa**, 2nd **aaga**, 3d **aay**. Again, in the languages cited above, this is quite the opposite, i.e. 2nd and 3d pl. persons have the same consonant **g**, but differ by the vowel **a** *vs* ***e/i*** (e.g. Kufo **aaga** *vs* **iigi**, Yegang **aga** *vs* **agi**, Talla **aaga-k** *vs* **eege-k**, etc...). He also missed that the 3d pers. fem. *pronoun is based on the same model, now with vowel* ***u/o*** (e.g. Kufo **aagu**, Yegang **agu**, Talla **oogo-k**, etc...). Finally, for « many » (Krongo **–ci** [Ehret], **ηg-iiji ~ nj-iiji** [Schadeberg]), he proposes a cognation with pNS ***θih**. This is not tenable in view of the corresponding forms in Mudo **g-ikki** and in Talasa **k-iigi**, evidencing a palatalization of **k/g** before **i** in Krongo (a regular feature) and the very unlikely *θ > **k/g** development.
I would like to emphasize that, in spite of these critics, I praise him for his very major contribution in the field of NS linguistics.

Conclusion. At present, I think that Kadu languages are distantly related to NS, possibly coordinated with NS as a whole. At least, I strongly disagree with Bender's contention that Kadu lies at the "core" of NS. Second, the presence of the "movable k" in Kadu challenges Ehret's view that this famous nominal prefix is an innovation subsequent to the splitting off of Koman from the remainder of NS. Rather, I believe that the "movable k" was already present in "pre-proto-NS" and was later lost in Koman. Finally, I shall leave open the question as to whether the 5 matches between Kadu, Nilo-Saharan and Niger-Congo *sensu lato* mentioned here and the 14 others between Kadu and Niger-Congo (also *sensu lato*) also uncovered by Greenberg result from chance resemblance or borrowing, or yet represent traces of a very old Congo-Saharan phylum.

BIBLIOGRAPHY

Bender, Lionel M. *The Nilo-Saharan Languages : A Comparative Essay*. LINCOM EUROPA, 1997, Munich, 2nd ed.

Ehret, Christopher. *Do Krongo and Shabo belong in Nilo-Saharan ?* In : Proceedings of the fifth Nilo-Saharan Linguistics Colloquium, R. Nicolai & F. Rottland (eds), Koeppe Verlag, 1995, Koeln, pp. 169-193.

Ehret, Christopher. *A Historical-Comparative Reconstruction of Nilo-Saharan*. Ruediger Koeppe, 2001, Koeln.

Fleming, Harold C. *Shabo : Presentation of data and preliminary classification*. In : Proceedings of the fourth Nilo-Saharan Linguistics Conference, Bender M.L. (ed.), Helmut Buske, 1991, Hamburg, pp. 389-402.

Fleming, Harold C. *Shabo : A new African phylum or a special relic of old Nilo-Saharan ?* Mother Tongue VII (2002) 1-37.

Fleming, Harold C. *Ongota lexicon : English-Ongota*. Mother Tongue VII (2002) 39-63.

Greenberg, Joseph H. *Languages of Africa*. Mouton & Co., 1966, The Hague, 2nd revised ed.

Greenberg, Joseph H. *Indo-European and Its Closest Relatives. The Eurasiatic Language Family*. Volume 2.Lexicon, 2002, Stanford University Press.

Schadeberg, Thilo C. *Comparative Kadu wordlists*. Afrikanistische Arbeitspapiere (AAP) **40** (1994) 11-48.

Stevenson, Roland C. *Relationship of Kadugli-Krongo to Nilo-Saharan : Morphology and Lexis*. In : Proceedings of the fourth Nilo-Saharan Linguistics Conference, Bender M.L. (ed.), Helmut Buske, 1991, Hamburg, pp. 347-369.

ACKNOWLEDGMENTS

I would like to express here my gratitude to Professor Harold Fleming for his friendly and strong support, his constructive criticism and expert comments about this manuscript. I am also indebted to him for offering me the opportunity to publish it in MOTHER TONGUE. I would like to emphasize that all opinions expressed here are mine, unless otherwise stated.

Author's address: Philippe Bürgisser
Av. Montagibert 18
CH-1005 Lausanne
Switzerland
philippe.burgisser@bluewin.ch

ANNEXES. Reconstructions and etymologies in detail.

Abbreviations. E,Ehret NS ; B, Bender NS ; G, Greenberg (G/NS = Nilo-Saharan, G/CN = Chari-Nile, G/NK = Niger-Kordofanian).

CENTR. SUD. = CENTRAL SUDANIC. W JEBEL = WEST JEBEL. pNIL. = proto-NILOTIC. WNIL., ENIL., SNIL. = WESTERN, EASTERN, SOUTHERN NILOTIC, respectively. W ATLANT. = WEST ATLANTIC. ADAMAWA EAST. = ADAMAWA EASTERN. EXCL. = EXCLUDING.

DM = Didinga-Murle. MM = Moru-Madi. Z. = Zerma.

RUB = KULIAK.

Italics writing designates

- items considered by Ehret (but not necessarily by the author of this paper) as loans
- items I consider as dubious or even unacceptable, most often because of far-fetched semantics

TO SHABO

E75 ***abi** "upper arm". KOMAN : Uduk **abi** "upper arm, wing, large branch of tree". SAHARAN : Kanuri **bivi** "upper arm", Berti **abi** " upper arm". MABAN : Maba **kabik** "armpit".

E1101 ***k'o:d'** « base of the neck ». KOMAN : Uduk **k'od'** "back of head, etc...". SONGAY : Z. **hohoori** "clavicle". MABAN : Maba **korkoruk** "shoulder". BERTA : **k'oroŋ** "back of neck".

E1110 ***k'ut^{y} ~ *k'ut^{yh}** "to fold, bend, especially arm or leg". KOMAN : Uduk **k'uc^{h}** "to bend thing, arm, leg, etc...", Opo **k'ujin** "knee" ; Gumuz **k'uci-cukwa** "knee". SONGAY : Z. ***kuusi*** *"to fold the legs" (suspected loan).* WNIL. : Naath **kwoc** "instep".

E654 ***p^{h}u** *« blow with the mouth »*/E656 ***p^{h}uh** "lungs". CENTR. SUD. : pCS ***pu** "to blow (with the mouth), breathe", pECS ***pu** "lung". KUNAMA : **fu-** "to blow" a.o.., **futa** "lung". SAHARAN : Kanuri **fu** "to blow (with mouth)" a.o., **fufu** "lung". FOR : **fu-** "to blow". SONGAY : Z. **kufu** "lung". W JEBEL : Gaam **fuu-** "to blow out, exhale". WNIL. : Naath **puat., puot.** "lung". SNIL. : Kalenjin ***pwa:n** "lungs". RUB : Ik **fut-** "to blow", **fuut-** "to breathe heavily.

E227 ***eyd** « breast ». NUBIAN : Dongolawi **ert-** "breast". W JEBEL : Aka **eeri**, Molo **iiri**, Kelo **iri, ii** "milk". BERTA : **irr** "milk, breast". DAJU : pDaju ***-id-** "breast". SURMIC : DM ***ira'** "milk". RUB : pRub ***id**, Ik **ido(e)-** "breast, milk".

E1234 ***zuk^{h}** « fur, hair ». CENTR. SUD. : pCS ***zu** "fur". KUNAMA : **sakama** "fuzz, down". NUBIAN : Nobiin **shigirti** " hair (of head) ", Diling **shuki** "tuft of hair". TAMAN : Sungor **sigit** "hair (of head)". W JEBEL : *Gaam **suud** "fur, hair, wool", **sugur** "pubic hair" (suspected loans).* RUB : *pRub ***tuk** "feather" (suspected loan).*

E569 ***peh**. KOMAN : Uduk **pe-** "base 5 in numerals 6 to 9". KUNAMA : ***bena*** *"arm".* SAHARAN : Tubu **kobe**, Daza **kee**, Zaghawa **ba** "hand". SONGAY : Z. **kabe** "hand".

E1565 ***ha'w** or ***ha':w** "to be hot". KUNAMA : **hawa** "heat". SAHARAN : Kanuri **hau** "ideophone of hottest part of hot season".NUBIAN : Kadaru **o:** "warm". RUB :pRub ***hab-**, Ik **hab-** "to be hot".

E937 ***t^{y}'e: / t^{y}'e:m** « ear, leaf ». KOMAN : Uduk **c'e**, Opo **c'ia**, Kwama **ts'e-** "ear and/or leaf" ; Uduk **c'emen** "leaf" ; Gumuz ***ts'e-** "ear", ***ts'e-n-ja** "leaf". SAHARAN : Kanuri **semo**, Teda **shii, shimi**, Daza **shi** "ear""". NARA : **sem** "grass". SNIL. : Datoga **se:ndo:da**, pl. **se:ŋga** "leaf".

E1008 ***k^{h}al** « to lick, lap ; tongue ». KOMAN : *Uduk **k^{h}al** "to give an odor, smell".* KUNAMA : **-kal-** "to lick, lap". NARA : **kal** "to eat". NUBIAN : Dongolawi **kal** "to eat, take food, etc...". W JEBEL : Gaam **kelad** "tongue" ; Aka **kala**, Molo **kela** a.o. "tongue". BERTA : **hala, hale** "tongue". ENIL. : *pENil ***kela-/*kala-** " tooth".*

E92 **mbwa** « to bear (fruit, child). KOMAN : Uduk **bwa** "to be pregnant, conceive", **bwad'** "to form ears (of grains)". KUNAMA : **bu-** "to blossom, bud". SAHARAN : Kanuri **–amb-** "to bear, beget, produce" (**yambo, tambo**). FOR : ***bai** "to beget". RUB : Ik **bon-** "to feed, look after", Soo **bon-** "to bear (child)".

E30 ***b'wah** « female ». KOMAN : Uduk **b'wa'** "daughter", **ab'om** "woman, wife". CENTR. SUD. : *pCS ***b'o** "weak".* SAHARAN : Zaghawa **abo**, Berti **bobo** "grandmother". FOR : **abo** "grandmother". DAJU : pDaju ***b'o** "mother".

TO KADU Numbers within < > refer to those in the Tables.

<1>
E887 *t^{y}id' "whole, entire,all". _SAHARAN : Kanuri teles "ideophone of spending entire day doing something"_. DAJU : Sila sad'a "all"._WNIL. : Naath cit "equally, the same "_. RUB : Ik tsid' "all".

<2>
E593/4 *pud (593 and 594 differ by tone) "burn/ash". KOMAN : Uduk pur "to singe, burn". CENTR. SUD. : Bongo-Bagirmi *pod'u "fire" [Ehret's comment : "loan from an extinct Kado-related language" !!!]. SONGAY : Z. burbure "to roast in ashes". NUBIAN : Dongolawi oburti "ashes". TEMEIN : podiŋ "fire".
SURMIC : Mursi bureni "hot", SE Surmic *abur "hot". SNIL. : Kalenjin *purke "hot".
CENTR. SUD. : Eastern CS *pu "ashes". SONGAY : Z. burow "ash". BERTA : bubuda "ash".
SURMIC : *bur "ash". WNIL. : pLuo *bur "ash".

<2>
E *p'ud. "smoke". No individual forms given.

<3>
E854/5 *t'o:l "smoke (v/n, 854 and 855 differ by tone)". KUNAMA : dullu- "to smoke (of fire)". SAHARAN : Kanuri telin "ideophone of gushing out of smoke". SONGAY : Z. dullu "smoke". NUBIAN : Nobiin tulli "smoke". WNIL. : Jyang tol, Naath tuol, Ocolo tolo " smoke". ENIL. : Teso -tola "to smoke fish". Similar to G/NS126 "smoke".

<4>
E1286 *a:r "intestines". KUNAMA : arda, adda "intestines". NUBIAN : Dongolawi a:re "interior, inner part, inside". DINIK : arek "stomach". RUB : pRub *ari "intestines".

<4>
G/NK9 "belly". KORDOFANIAN (EXCL. KADU) : HEIBAN Kanderma ari, Otoro (g)are, Laro (l)ari. TALODI Masakin (dh)arr. KATLA Katla (g)uth, Tima (k)urun.
NIGER-CONGO : W ATLANT. Temne (k)or, Banyun (bi)er. KWA Yoruba ara, Ibi aro "body". BENUE-CONGO Tiv iyor "body", Nungu oro

<5>
E62 *boh "big". KOMAN : Gule abo "long". CENTR. SUD. : *bo "big". SAHARAN : Daza bo, bu "big". W JEBEL : Gaam boi- "to get fat". SURMIC : *boi "big". _ENIL. : Bari bot-an "to be big". (suspected loan)._ Overlaps with G/NS84 "large"

<5>
G/NK23 "large". KORDOFANIAN (EXCL. KADU) : HEIBAN Heiban ipa.TALODI Eliri o:pi.
NIGER-CONGO : W ATLANT. Diamb faf, Limba boi. MANDE Malinke, Vai ba, Kpelle bayi. GUR Dagomba bi:, Senufo pei. KWA Santrokofi opê "thick", Twi pipri "thick, p-Ijo *opu. ADAMAWA EAST. Juman b'o, Kam boli.

<5>
G/NK26 "oil, fat". NIGER-CONGO : GUR Dagomba kpa, Kanjaga kpa, Totobe (m)kpa(m). KWA Newole kpo. ADAMAWA EAST. Zande kpai, Barambu and Pambia kpa

<6>
E1563 *ha:w "flap, wave (limbs), bird". KOMAN : Uduk hawhaw "slashing quickly with foot or stick, ...". KUNAMA : awi-, awe- "to row ; to swim". TEMEIN : iawe "bird". DAJU : *awade, pl. *awin^{y} "bird". pNIL. : *wen^{y}/*win^{y} "bird". WNIL. : Luo *wen^{y}/*win^{y}. ENIL. : pEN *-kwen^{y} -.

<7>
E202 *d'u: "give off (black) smoke". KUNAMA : duuda "smoke". BERTA : d'u:θa "smoke". RUB : Ik id'uz- "to produce black smoke".

BOOK REVIEWS

Mario Alinei - Origini delle Lingue d'Europa [Origins of the Languages of Europe]; Volume 1 – Teoria della Continuità [The Continuity Theory], Volume 2 – Continuità dal Mesolítico all'età di ferro nelle principali aree etnolinguistiche [Continuities from the Mesolithic to the Iron Age in the Principal Ethnolinguistic Areas] (Il Mulino – Bologna, 1996 and 2000).

Reviewed by Jonathan Morris.

One of the main problems of a successful scientific theory is the excessive attachment to it by its proponents, who would rather tinker with its core assumptions in order to accommodate contrary evidence than abandon it. Conventional theories of Indo-European origins would seem to be a case in point. While the traditional theory of a Bronze Age invasion of nomadic pastoralists, reproposed most notably by Maria Gimbutas, is foundering on the absence of generalised archaeological evidence for rape, pillage and discontinuous change, it appears to be losing ground to Colin Renfrew's wave model of farmers/language teachers from somewhere in the Fertile Crescent introducing Europe's Mesolithic hunter-gatherers to agriculture, although this is essentially a more peaceful version of the same old invasion theory shifted backwards in time by a couple of millennia.

Origini delle Lingue d'Europa by the Italian dialectologist and linguist, Mario Alinei, can be read as a radical critique of both. While there is evidently far more to his work than this, it is hard to give more than a brief sketch of a richly detailed 2,000 page work in the same number of words.

His Continuity Theory proposes that Indo-European speakers arrived in Europe tens of millennia ago, and by the end of the Ice Age, had already differentiated into Celtic/Italic/Germanic/etc. speakers occupying territories within or close to their traditional homelands. He also suggests that the glaciers and pre-glacial basins that compartmentalised Europe during the Ice Age may actually have been the mechanisms for this process of differentiation of Indo-European into its component families.

As such, the transition from, say, Mesolithic to Neolithic would have occurred in a smooth and continuous way, with the full involvement of native populations. The only major discontinuities since the Ice Age, therefore, have been the expansion into new territories liberated by the retreating glaciers (e.g. Scandinavia) and the stratification of societies (including subjugation of one people by another) permitted by technological advantages accruing from the Chalcolithic onwards. An evident virtue of this theory is that it dispenses the need for the ghostly pre-Indo-European substrate that the theories of Gimbutas and Renfrew require in the same way that 19th century physics had to postulate a luminiferous aether.

The Continuity Theory also draws radically different conclusions about the rate of linguistic change from those of the traditional theories of Renfrew and Gimbutas. Clearly, if a homogeneous proto-Indo-European people appeared in Europe 6,000 years ago, then firstly, all subsequent language evolution will necessarily be compressed into the 6,000 years between then and the present, and secondly, the projection of this rapid rate of linguistic change back into the Palaeolithic will lead to the evident conclusion that no useful inferences can be drawn about languages spoken at that time, since it will impossible to distinguish genuine cognates in extant languages from chance similarities.

Arguing for a principle of linguistic conservation rather than rapid change results in a much simpler explanation for Indo-European's astonishingly large linguistic franchise: its speakers were the first settlers in their home regions. This raises another key assumption of his theory that is diametrically opposed to Renfrew's: that intruders tend to adopt the language of the indigenous population rather than vice-versa, unless they migrate in sufficiently large numbers. The European colonisers of the New World may have comprehensively displaced its indigenous peoples, but the lethal cocktail of violence and disease that they introduced does not appear to hold for Renfrew's essentially peaceful model of Neolithic colonisation. As such, most of the evidence seems to be on Alinei's side: Thus, despite migrating to Iberia, Italy and North Africa in considerable numbers, the Vandals, Ostrogoths, Visigoths and Lombards left only minimal linguistic traces of themselves. Cavalli-Sforza's genetic evidence showing that Near Eastern gene inflows during the Neolithic account for only 25% of total variation is hardly what we would expect had wildly successful farmers pushed indigenous hunter-gatherers to extinction. Indeed, Alinei draws on the work of Zvelebil to argue that the initial appeal of farming to highly specialised and productive hunter-gatherers was distinctly limited and that the onset of the Neolithic was a much more piecemeal affair. He also provides archaeological evidence to suggest that the Germanic speaking areas to the West and South of the Rhine (i.e. Alsace and Switzerland) had already been in place for millennia, suggesting, if anything, that the Celtic domination of Central Europe was a similar case of a group that expanded from a primary focus in Western and Northern France (as defined by the original megalithic areas) to establish a transient hegemony based on superior access to deposits of copper and iron. Like the Normans in Britain, the Celts would this have passed on a vocabulary associated with technological innovation before being gradually assimilated by their subjects.

Why then, do proponents of traditional theories believe in them? Alinei considers that their motivations are ideological and ultimately traceable to the 17th century Biblical belief in catastrophes, overlaid by a 19th century belief in Aryan supremacy which created the myth of an Indo-European people that sprung up in fully civilised form and a pre-Indo-European populations akin to the 'damned pre-diluvians'. Biblical creationism was successfully defeated by uniformitarianism, first by James Hutton and Charles Lyell in the field of geology and later by Charles Darwin in the field of biology. Alinei points out that the same principle found initial favour in linguistics but was later derailed by the Neogrammarians. As such, by arguing for slow and continuous change, he is merely returning to an old idea. Having said this, I suspect that his view of his opponents is oversimplified. What may have begun as an argument of the form 'late arrival ergo rapid language change' appears to have inverted cause and effect and become 'rapid language change ergo late arrival'. This has revived the Société Linguistique de Paris' prohibition of speculating on the origin of Indo-European, although these days it tends to wear statistical clothes, dismissing potential cognates as chance similarities. Alinei points out that while this late origin may represent the current consensus in Indo-European studies, specialists of other language families such as Uralic or Australian argue quite happily for much deeper origins.

In similar fashion, Alinei turns on its head the old argument that a widely occurring pan-Indo-European word for a cultural innovation datable to a given era necessarily implies subsequent dispersion by pointing to examples where one might expect to find a PIE root conserved in several families and but actually finds a completely disparate series of words. For example, the IE root *mrt-* 'die' is widely conserved, but the words for burial, an innovation of the Upper Palaeolithic, *(e.g. seppelire, tapto, adnaichim, grafa)* show comprehensive differentiation, as do Mesolithic innovations such as the extraction of resin from trees: (IE *deru* (tree) > ME *tar,* Celtic *betulla* (beech) > *bitumen*, Lat. *pinus* (pine) > *pix* (pitch)). There are many other examples of 'missing cognates' such as 'bread' and 'war'. The evident conclusion is that differentiation had already taken place at the time of these cultural innovations.

Indeed, it is by making detailed comparisons of words and material cultures that Alinei arrives at powerful insights. Three of these deserve particular mention.

Firstly, he shows how the invention of new words in Indo-European is conditioned by material culture, allowing them to be dated by archaeological evidence. In Latin, verbs originally relating to a hunter-gatherer society generate huge lexical families (e.g. *legō* (collect, gather) > *lignum, ēlēgans, neglegere, collēctus, religiō, etc.*). In Germanic, verbs for 'doing, binding, turning' are grammaticalised into suffixes that are used to form abstract words (*e.g. wert* (turn) > *-wards, skap* (do, make) > *-schaft, haft* (handle) > *-haft*). The social stratification of the Bronze Age is paralleled in the lexical distinction between noble work (Lat. *Opus*, Gk. *érgon*, NHG *Werk*) and slave work (Gk. *pónos*, Russ. *rabota*, NHG. *Arbeit*).

Secondly, he suggests that the boundaries of material cultures coincide with linguistic boundaries. Hence the Uralic/Baltic frontier would already be reflected by the boundary across the South of Latvia between the Kunda and Nemunas cultures as early as the Mesolithic, shifting slightly to the North with the Narva culture of the pre-agricultural Neolithic, but then becoming stable. Furthermore, Latvian shows distinct Uralic influences, such as borrowings from Livonian and the characteristic Uralic accent on the first syllable that Lithuanian does not. He also shows, for example, that the Bronze Age cultures of Chassey, Cortaillod, Lagozza and Pfyn-Rosen (derived from the Urnfeld) already correspond to Franco-Provençal, Occitan, Gallo-Italic and Germanic speaking groups.

Thirdly, as a consequence of this early differentiation, he suggests that modern Italian dialects are not descended from classical Latin but from a series of differentiated sister Italic languages. In this way, they may conserve features that are more archaic than classical Latin. Indeed, the conventional assumption that all of these dialects derive from vulgar Latin results in bizarre phonological changes occurring in a compressed time frame. Lat. *caseus* (cheese), for example, is clearly associated with Lat. *coagulum* (rennet), but there are no regular sound correspondences in Latin that could derive the former from the latter. This is not true of Lombard dialect, however, where the intervocal *–gl-* in Latin corresponds to medial *ǧ* and final *č*. In this way, Lomb. *cač* can be derived from *coagulum*, and since Lombardy has been a major dairy centre since Neolithic times, it is plausible as the primary origin for Lat. *caseus*, particularly given indications by early Latin writers such as Plautus that *č* was assimilated into Latin as *–sj-*. In similar fashion, the etymologically obscure *ferrum* (iron) can be explained as a loan from Gallo-Italic (cf. Lat. *fabrum*, Fr. *orfèvre*), probably originating as a compound noun, *aes fabrum* (worked metal). Similarly, *pratum* (meadow) is probably cognate to *pilatus* (hairy) [cf. Fr. *pelouse*], but borrowed from Ligurian, in which the rhotacisation of the *–il-* is perfectly natural. This point has enormous implications for glottochronology, since if Vulgar Latin is not the true ancestor of say, modern Milanese (which would be the descendant of a Lombard dialect that had fully differentiated at the time of the Roman empire), then clearly the rate of linguistic change used to calculate the point of divergence between modern dialects/languages will be systematically overestimated. Furthermore, there are modern parallels. The main reason why American English and Brazilian Portuguese, for example, differ from their European counterparts is that they conserve dialectal features that British English and European Portuguese do not, rather than because of divergence since colonisation. It is regrettable that Alinei restricts his discussion of this point to Latin/Italian rather than establishing it as a general principle, since this would demonstrate the inherently conservative nature of language.

The second volume is a family-by-family development of the above ideas. If anything, its only shortcoming is that it is not exhaustive, since Alinei does not cover Iberia, Greece or Asia Minor. It is nevertheless impossible in this brief essay to convey the wealth of material that it does contain. As a dialectologist and chief editor of the *Atlas Linguarum Europae*, a Europe-wide dialect atlas, Alinei is eminently placed to build his arguments based on highly detailed studies of dialect words, showing for example, how Corsican words for parts of a plough can be used to show that agriculture was introduced from Tuscany during the Neolithic. I shall thus limit myself to a couple of points that undermine his rivals.

Firstly, the Gimbutas theory has to explain how a cultural frontier apparently corresponding to the Uralic-Baltic divide was in place millennia before the arrival of her Kurgan peoples. It is possible to argue that only the Nemunas culture to the South was 'Kurganised', but why, in the absence of any evidence for conflict, do these putative warrior-pastoralists destroy all traces of the pre-Indo-European Nemunas culture but have no impact on their Northern neighbours, who are separated only by a minor river, and this despite the fact that the latter appear to have suffered the intrusion of the Boat Axe culture from Scandinavia at roughly the same time. Then there is the question of the Kurgan peoples themselves. Alinei devotes an entire chapter to showing that these and their predecessors of the Sredny Stog culture were far more likely to have been Altaic speakers. The notion that these peoples were responsible for introducing the inhabitants of Eastern Europe to the horse would also explain the Altaic origin of many horsebreeding terms in the Slavic languages (e.g. Russ. *lošad'* (horse) < Chuvash *laša*; Serb. *ajgir*, Pol. *ogier* (stallion) < Turkic *ajgur*), not to mention the word *kurgan* itself, which derives from an old Turkic word that probably meant 'hill-fort'.

In similar vein, his chapter on Scandinavia creates further serious problems for Renfrew's theory. The arrival of the specialised Fosna fishing culture on the islands off the Western coast of Norway between Stavanger and Vega can be dated to shortly after the retreat of the glaciers, around 8,500 B.C. Furthermore, agriculture did not appear in this region until the Bronze Age (around 2,200 B.C.), and even then was restricted to the interior of Western Norway. Despite the fact that there was only a late conversion to agriculture, all of the toponymy of the coastal region is Germanic in origin. Nor are there any obvious survivals in a specialist fishing vocabulary, despite the likelihood that the incoming IE farmers lacked one. Did the incoming IE farmers succeed in destroying all traces of pre-IE languages in the area, while abandoning their "technologically superior"agriculture for an "inferior" Mesolithic fishing existence?

Finally, there is the question of the Palaeolithic and the evidence for the early spread and differentiation of Indo-European. Alinei believes that language is very old, stretching back to early Homo sapiens and possibly to Homo erectus, although he perhaps pushes his attempts to collate language and material culture too far with a model based on work by Mathew Dryer and others that proposes cognitive parallels between the operations involved in making stone tools and the formation of sentences. He cxoncludes that the persistence of simple choppers in SE Asia until the end of the Palaeolithic is a hallmark of monosyhllabic languages. It is nevertheless easy to think of counterexamples, such as the Andaman Islanders, who never developed elaborate hand axes, but who speak highly agglutinative languages.

In the light of new genetic evidence that has appeared since the first volume of his book was published, his dates for the differentiation of Indo-European from Nostratic as early as 80-90,000 years ago are probably far too high.If the current interpretations of mitochondrial and Y-chromosome DNA evidence are correct, then the earliest possible date for an entry into a Europe still occupied by Neanderthals would be around 45-50,000 years ago[1], although such an entry date is still radically different from those of the traditional theories. Furthermore, the vagaries of climate change between then and the end of the Ice Age must have shifted Europe's population around, by turns isolating them and mixing them together. Whether or not such linguistic evidence for such patterns can be unscrambled remains to be seen.

Having said this, Alinei does have ineresting things to say about the Palaeolithic. His very strong point regarding the coincidence of linguistic boundaries with those of material cultures is less likely to work for such remote periods for the obvious reasons that hunter-gatherers had simpler material cultures and occupied less well-defined territories, even if he does identify the Epigravettian, which occupied Italy and the coast of France and Catalonia from 24,000-10,000 BC, with proto-Italic speakers.

He also makes an interesting analysis of words with religious and magical associations. We know from ritually arranged bear skulls and long bones in such caves as Régordou that between 40-10,000 years ago there was a stable totemic cult of the bear in Central and Northern Europe. We also find that a PIE complex with regular correspondences (Hitt. *hartagga,* Gk. *árktos,* Lat. *ursus*) is replaced in such areas by euphemisms. OE *bera* (the brown one), Russ. *medved'* (honey eater), Lit. *lokys* (hairy). If we assume that the Proto-Indo-European word became taboo and was replaced by a euphemism, then it seems logical to argue that the emergence of these expressions can be identified wih the religious context of the Palaeolithic, when they emerged, rather than the entirely different religious context of the Bronze and Iron Ages. as would follow from conventional theories. If so, then we have semantic evidence for the differentiation of Indo-European even at this early stage.

---

[1] Stephen Oppenheimer has argued for two waves of migration into Europe, one from Anatolia around 45-50 kya and another via the Caucasus and Ukraine around 33 kya. (Cf *The Real Eve*, p.137)

This, then is a brief sketch of Alinei's theory, which is both simpler than its rivals and more powerful in terms of the insights it provides into language in the Meso- and Palaeolithic. While his book contains some flaws, I believe that it deserves to be regarded as one of the seminal texts on linguistic archaeology, although given its lamentable lack of citation in English-language circles, it appears that recognition will have to wait until a translation of the original Italian appears.

Notes:
More information and a series of papers by Mario Alinei and other linguists/archaeologists sympathetic to the Continuity Theory may be found at his website: www.continuitas.com

Jonathon Morris is a translator and amateur linguist based in São Paulo, Brazil. He may be contacted at jonathon@nw.com.br

Mario Alinei – Etrusco: Uma Forma Arcaica di Ungherese [Etruscan: An Archaic Form of Hungarian] (Il Mulino, Bologna – 2003)

Reviewed by Jonathan Morris.

Etruscan words such as *mi* (I), *eca/ita* (this), *maθ* (honey), *tin* (day) and *tur* (give) have long persuaded many scholars that Etruscan is a Eurasiatic language, perhaps even an Anatolian language (Bomhard) that split from a common Indo-European stem at a very early stage. The precise nature of its affiliations nevertheless remain obscure. In what is probably the most interesting account of recent years, the Italian dialectologist, Mario Alinei, suggests in his new book that Etruscan is nothing more than an archaic form of Hungarian with extensive Turkic borrowings.

This linguistic proposition rests on two historical/archaeological propositions – an uncontroversial one that the Etruscans came from the Carpathian basin, and a highly controversial one that identifies them as a proto-Hungarian/Uralic people.

The first of these had already been demonstrated by the late 1960s by archaeologists such as Hugh Hencken, who highlighted the cultural continuities between the Urnfeld cultures of Central Europe and the proto-Villanovan cultures of Northern and Central Italy, suggesting that the former culture had introduced a series of innovations to the latter, such as hydraulic engineering, the horse, the sword. Hencken also pointed out that the Urnfelders had probably left their signature among the Sea Peoples who attacked Mycenae and the Egypt of Ramesses III towards the end of the second millennium B.C., in the form of ships with prows in the form of horned birds' heads, as well as a name cited by Egyptian sources, the *Tursha* which agrees with the Greek name for the Etruscans, the *Tyrsenoi*, and as Alinei tentatively suggests, with *Türk*.

Lawrence Barfield noted that Central Europe was the 'industrial heartland' of Bronze Age Europe, whose inhabitants developed their metalworking skills and by extension, the military technology that would have allowed them to become a colonial elite, capable of seeking mineral resources elsewhere and subjugating other less technologically advanced peoples. In this sense, their exploitation of Central Italy's mineral wealth during the Bronze Age is hardly surprising. Alinei nevertheless believes that this process of gradual infiltration and scouring Europe for high quality mines may have begun as early as the middle of the 3rd millennium, accelerating during the Polada culture. While the rule seems to have been peaceful coexistence between these Central Europeans and the Italic locals of the Palafitte/Terramare cultures, it appears that around 1250 B.C., migration from the Carpathian basin led to conflict and the overthrow of these local cultures, after which the proto-Etruscans moved into Central Italy and eventually carved out their own state that became the locus of the Villanovan culture.

While the above sequence of events does not necessarily place a Hungarian label on these Bronze Age Urnfeld peoples, it follows from Alinei's continuity theory (see my review of *Origini delle Lingue d'Europa*) that Italic speakers are the original occupants of Italy and the Western Mediterranean. Hence, the Etruscans could only be an intrusive presence, despite the claims to the contrary by the classical historian, Dionysius of Halicarnassus.

What has hidden the Uralic affiliations of Etruscan is its highly variable spelling, although Alinei assures us that its latitude is no worse than in Mediaeval Florentine or Venetian texts. If the Etruscans were a warrior aristocracy that was gradually absorbed by its subjects, then it presumably recruited its scribes from its Italic-speaking subjects, who wrote in a vowel-poor alphabet of Semitic origin, thus obscuring the open syllable, agglutinative nature of a Uralic language with extensive vowel harmony.

These links nevertheless become clear when we consider the Etruscan vocabulary for its offices of state. Writing in the 10th century, the Arab historian, Ibn Rusta, noted that Hungarian tribes split their leadership between a warlord wielding de facto executive power, the *gyula*, and a largely ceremonial but revered king, the *kende*. Alinei finds that the main offices of the Etruscan state included the ZILA/ZILAΘ/ZILCI/ZILI/ZILX, identified by Greek sources as the military commander, and the CANΘE/CAMΘI/CANΘCE, the *princes civitatis* or leader of the Etruscan community. Then there is the knight, LUCUMO (*H. ló* (horse) + Komi. *kom* (man)), the two-headed axe, PURΘ (H. *balta* (axe), Chuvash *purte*), and the land surveyor, MARUNU (H. *mérő* (measure)), to cite but a few examples.

Once one overcomes this hurdle, the relationships become much clearer, the main phonological differences being Etr. *θ* > H. *t*, Etr. *c* > H. *k/h*, Etr. z > H. *gy/cs*.

I have chosen the following examples from among the hundreds that Alinei provides to give a flavour of his proposed correspondences, which demonstrate the phonological conservatism of the Uralic languages. (NB H. = Hungarian, M. = Manty):

Etr. *atranes* > H. *arany* (gold) [Alinei points out that this was probably a general FUg borrowing *tharana*, from Iranian *saraña*]; Etr. *avil* > H. *év* (year); Etr. *calu* > H. *hal* (die); Etr. *caθ/cat/caθinum/caθna* > M. *kot* (sun); Etr. *elśsi* > H. *első* (first); Etr. *fulu* (smith) > H. *fűlő* (stoker of fire); Etr. *hus* > H. *hős* (young); Etr. *ilacve* > H. *elégvé/eléggé* (sufficient); Etr. *iθal* > H. *ital* (beverage); Etr. *laukh/lux* > H. *ló* (horse); Etr. *mar-* (measure) > H. *mér-* (measure); Etr. *nac/nacna* > H. *nagy* (big); Etr. *parliu* (to cook) > H. *párol* (to boil/steam); Etr. *rasna* (territory, region, country) > Old H. *resz* (region, territory) [from FUg *räc3* (piece, part)]; Etr. *tes/tez* > H. *tesz* (do); Etr. *uru* (Sir, lord) > H. *úr* (landowner, lord); Etr. *zilacal* (stars) > H. *csillag* (star).

Indeed, with such a key, the Etruscan phrase *zilaθ mexl rasnal/s* can be read as 'magistrate of the Etruscan country'. The word *rasna* which Dionysus of Halicarnassus misread as the Etruscans' name for themselves is merely the word for *country*, while Alinei identifies *mex* as an archaic world for *people*, similar to *magyar*.

The origin of the Hungarian nation is traditionally dated to the conquest of its national territory in the Carpathian basin by Arpad in 895 A.D. This view evidently obliges the Hungarians to mill around on the steppes of Central Asia for millennia before they receive a European 'visa', and may at first sight be reinforced by the fact that within the Uralic family, Hungarian's closest relatives are the Obugric languages, Mansi and Khanty, that occupy lands around the upper Ob and Irtush rivers in Western Siberia.

What is highly suspect about this ban is that it does not apply to other Uralic peoples, such as the Finns, Lapps, and Komi, who are thought to have spent the Ice Age in a watery refuge in the Ukraine and Southern Russia before moving North to exploit the new hunting opportunities provided by the retreating glaciers.

In addition, contemporary Arab sources from the 10th century onwards, most notably al-Garnarti, writing around 1080, speak of two groups of Hungarians, one living on the Danube and another 2000 km to the East in what is now the Bashkir republic, whose aristocracy was bilingual in Turkish and Hungarian, and which shared the *gyula/kende* model of kingship with the Khazars. Indeed, it is highly significant these words are of Turkic origin, with H. *gyula* reflecting Bashk. *yulaj* and *kende* Tatar *kündü* [reverence, profound respect].

Archaeological evidence (e.g. from cemeteries) has confirmed the cultural continuities between the two groups. Furthermore, the Hungarian king, Géza I (1074-77) received a crown from the Byzantine emperor inscribed with the legend 'to Geza, the faithful king of the Turks'. Indeed, the heavily Turkicized character of the Hungarians, as is apparent from their music and mythology, makes it most likely that less discerning classical sources would have labelled them with the hold-all description of *Scythes*.

On this point, the linguistic evidence is illuminating, in that Hungarian shares a vocabulary with Mansi and Khanty for horses and wagons that is borrowed from Turkic (e.g. H. *ló*, M. *low* [horse]; PUg. *närk3*, M. *näwrä*, H. *nyerëg* [saddle]); PUg. *päkka*, Kh. *päk*, H. *fěk* [bridle, rein]; PUg. *säk3r3*, Kh. *iker*, H. *szekér* [vehicle], but is unique among the Uralic languages in also borrowing its agricultural vocabulary from Turkic (e.g. H. *eke* [plough], H. *árpa* [barley], H. *búza* [wheat], H. *sajt* [cheese], H. *tinó* [ox]).

This suggests that the proto-Hungarians were still united with the Mansi and Khanty at a stage when they were pre-agricultural nomadic pastoralists involved with horsebreeding, but that the proto-Hungarians subsequently split away and were introduced to agriculture by another Turkic people. We may also conclude that the Hungarians were not present in Europe at the time they acquired their knowledge of agriculture, since if they had been, we would expect them to have borrowed an Indo-European agricultural vocabulary.

Assuming that by the Neolithic, they were more or less located in the Obugric region, a move South and West across the Urals would have brought them into contact with the *Seredny Stog* culture, well known as the precursor to the *Kurgan* culture, which intruded from the steppes into Europe, firstly into Eastern Hungary and Romania where its bearers encountered the *Bodrogkeresztúr* culture towards the end of the 4th millennium, and later, in greater numbers into the Carpathian basin itself, at the time of the *Baden* culture (around 2600 B.C.), which Alinei identifies as originally Slavic in origin, explaining the Slavic toponomy of the area. Hence, far from announcing the proto-Balts of Gimbutas' theory, the Kurgans are actually a manifestation of a Hungarian invasion.

Alinei readily admits that there are areas of Etruscan that have not been explained by his theory, such as its words for numbers. His main point about the Turkic origins of Etruscan vocabulary for offices of state is nevertheless a powerful one. His theory also has the distinct virtue of generating testable hypotheses, most notably regarding the separation of the Hungarians from the Obugric group. If one accepts these, one is obliged to accept a causal chain of events that projects the Hungarians back to a Bronze Age presence in the Carpathian Basin, and by extension, to the Kurgan peoples. Alinei's linguistic conclusions may thus be as important for Uralic studies as Ventris' decipherment of Linear B was for Greek.

*Bomhard notes that various Russian scholars have tried to establish links between Etruscan and the North Caucasian languages. Intriguingly, Starostin cites (Diakonoff-Starostin, 1986/46) Hurrian ki- in ki-ži (thirty) – which matches Etr. ci (three) closely).

BIBLIOGRAPHY

Bomhard/J. Kerns – The Nostratic Macrofamily, pp. 32-4 (Mouton de Gruyter, 1994)
Hencken, Hugh – Tarquinia, Villanova and Early Etruscans (Peabody Museum, Cambridge, Mass., 1968).

Jonathan Morris is a translator based in São Paulo, Brazil. He may be contacted at *jonathan@nw.com.br*.

More information and a series of papers by Mario Alinei and other linguists/archaeologists sympathetic to the Continuity Theory may be found at his website: www.continuitas.com.

A Peek Into the Future

Issue X for 2005 will be out by early summer or before.

Most of the contents are on hand but a few more are solicited to fill out the program. These are not promises but rather probabilities. A non-alphabetized list is, as follows:

B.K.Rana	Additional data and analysis on Kusunda (Nepal)
Jonathon Morris	Report on Trombetti's proposed India-to-Tasmania hypothesis
Richard Thornton	More on Basque vis-à-vis Eurasiatic
Allan Bomhard	Review of Lehmann's pre-Indo-European
(A distinguished paleoanthropologist)	The wee fossil folk of Sundaland: Pygmy Homo erectus or something else?
The great archeological debate that was not allowed.	Various comments on the main hypothesis.
Wilfried Schumacher.	Notes on some topics.
Larry Lepionka	Report on a possible pre-Clovis site in Georgia.
(From the literature)	Chinese geneticists report on China's genome.
(From the literature)	Crossing the Bab el Mandeb circa 125,000 BP
(From the literature)	Fossil Ethiopians of 195,000 BP were H.sapiens
Murray Denofsky	Review article of 'The Language Wars'
Peter Norquest	Review of Dolgopolsky Festschrift
William Davey	South American Migrations